Textile World

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CONTENTS NOVEMBER 1932

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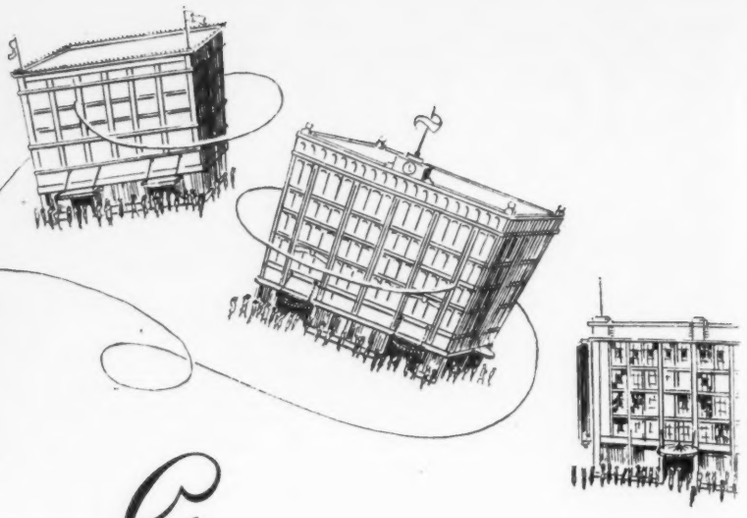

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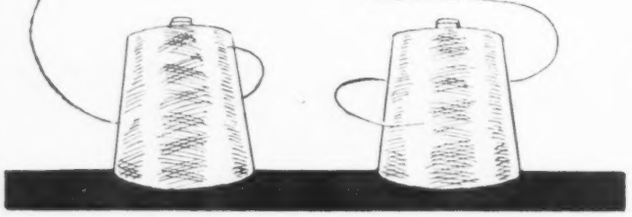

Manufacturers of

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November, 1932

Textile World

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Vol. 82, No. 5

Editor: DOUGLAS G. WOOLF

What About This "Social Responsibility"?

THEORETICALLY, freedom of thought and freedom of speech are inherent rights of the people of this country. Actually, those rights can be exercised to only a limited degree.

We are thinking specifically of conditions in the textile industry. The individual manufacturer presumably has the privilege of expressing his honest opinion on the complicated economic and social problems affecting his progress. But let him divert the least bit from established habits of thought in the industry—and he finds himself the target for abuse and ridicule. He is stamped as a reformer or a radical—or both. He may try again but eventually he becomes discouraged—and withdraws into his shell.

That, to our mind, is the greatest single retarding influence in textile manufacture today. And that barrier must be removed before real progress can be made.

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Within recent weeks, several outstanding manufacturers have expressed liberal viewpoints on matters which, while apparently social in nature, have vital economic implications.

The retiring president of the National Association of Cotton Manufacturers declared that the textile wage was too low, and that uniformity in hours, in minimum wage, and in employment of women and minors, was advisable. . . . The incoming president of the same association concurred in the criticism of the wage scale. . . . A group of Alabama manufacturers attempted to secure support in a move to obtain a constitutional amendment providing for a 48-hour week in the cotton-textile industry.

And from the comments we have heard on these men who "dared" to think out loud, one would imagine that they were suspected of being undercover agents from Moscow.

It seems to us that there are two factors to be considered in this connection. One is that, just because any of us disagree with a sincere proposal, discussion of that proposal should not be discouraged. Personally, we believe that a shorter work-week in textile manufacture is not only advisable but inevitable. It happens, however, that we do not believe the enactment of Federal legislation to that end is either practical or feasible. Nevertheless, we cannot imagine a more fruitful topic for industry-wide discussion than this subject of hours and wages.

The second factor to be considered is that not only have conditions changed radically in the last decade or two, but we are facing further and continuing changes. What was sound policy in 1914 or 1919 or 1929 is not necessarily sound policy today. Look at the record of the last few years: A "55-50" plan of maximum hours of labor adopted by the majority of cotton manufacturers. . . . Elimination of night employment of women and minors adopted by the same group. . . . A proposal for total elimination of night work submitted to a referendum. . . . Ten years ago these moves would have been stamped as unspeakably radical; today they are history.

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We wish to repeat the observation, made recently in these columns, that the question of wages and hours and other employment policies is not just a "labor" problem—but one of the most acute managerial problems a manufacturer has to face. As such, it demands the best thinking of the industry instead of, as at present, resistance to thinking.

It has been suggested that an impartial survey of textile conditions be made by an outside organization at the request of the industry. First, we believe, the industry should attempt to capitalize its own resources of leadership and crystallize its own thinking. Otherwise, no matter how sound such a report might be, it would draw out no support and produce no effective results.

Consequently, we recommend to the several branches of the industry that their associations be encouraged—in fact, ordered—to devote the major part of their effort during the next year to the development of open forums on the broad subject of employer-employee relationships.

Let us be understood. We are not suggesting Sunday-school sessions or sociological clinics—but a study of the relation of wages, hours, and allied policies, to the economic progress of the industry and its workers.

That is what is really meant by the term "social responsibility" of industry.

The Editor Says:

"EVERYTHING considered," (to use the stock phrase of the moment) we seem to be continuing to make progress. We appear to be going places. No matter what happens before this issue comes off the press, there have been sufficient encouraging trends in business in general, and in textiles in particular, to make the most confirmed pessimist keep a weather-eye open for alibis. . . . . We could build up a statistical picture to reinforce this statement, but we have neither the space nor the inclination. If the reader doesn't *feel* the change, he could never be convinced of it by figures. . . . . It is unthinkable that we should slip back to the low of the depression. If this start toward recovery should prove abortive, it would be just too bad. There may be times this winter when, under the sting of unemployment and its effects, people will feel that we are so slipping. But we just can't afford to. That's a good thought to keep in mind.

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AS WE write this, we do not know who is to be President of the United States for the next four years. We have our suspicions—but that's another matter, and relatively unimportant. What *is* important is the attitude in which business accepts the news. . . . . Quite naturally, each of the two major political parties has fostered the idea that the success of the other at the polls would bring disaster to the country. As campaign fodder, that's quite all right. As a basis for business forecasting, it's the bunk. . . . . No matter which side has won when this issue appears, the world will not come to an end. We have reached a certain stage in the fight out of depression. We do not have to yield one inch of ground gained if we don't want to. If we don't like what the party in power does at any time in the next four years, we still have the same means of articulation. True, we don't use those means sufficiently, but that's our fault—and not the fault of politicians. . . . . So-o-o-o, as Ed Wynn says, let's forget the election. There's work to be done.

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THE news that there is a possibility that the cotton-textile industry's policy of eliminating night employment of women and minors may be discarded after Nov. 15, comes as a distinct shock. It is particularly a shock to those who believe, as do we, that the adoption of this policy represented the greatest single step forward ever taken by the majority of the industry. . . . . If the recent departures from this stand represented the effect of increased demand, the only conclusion to be drawn is that mill executives have failed to grasp the very rudiments of cooperation—and that they have no conception of the *continuing* need for it in cotton manufacture. If, on the other hand, the present crisis reflects the effect of the obstructionist tactics of a small group, the industry is in the sorry position of having its policies dictated by a minority. Either condition is deplorable. . . . . Naturally, we do not know what action will be taken in Spartanburg Nov. 15. However, we cannot avoid making the solemn observation that, should the meeting fail to preserve the night work policy, the industry will have yielded an asset of accomplishment and of public prestige which it will take years to regain.

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A STORY has been following us around lately and we want to pass it along for the benefit of those who haven't already told it to us. There are several versions; here's the one published in the *Wonalancet Way:* "Someone tells us the story of the negro who sold a bale of cotton to a grasping storekeeper. The merchant, after weighing the cotton, deducting for tare, grease spots, and other items revealed by an eye sharpened with long practice, informed the negro that the deductions had absorbed the value of the cotton and that he still owed the storekeeper 50c. Having no money, the negro offered to wipe out the charge by bringing the storekeeper a chicken. The offer was accepted. The following week the negro appeared with two chickens and when asked why he brought them, responded: 'I wants to sell *two* bales o' cotton dis time.'"

❖

THE cotton crop report, as of Oct. 1, showed a prospective increase of 1% over the previous month's forecast. It indicated an approximate drop of 35% from last year's crop. And the cotton market broke sharply. It sounds silly, doesn't it? . . . . We hope we do not have to reaffirm our belief in the importance of complete statistical information. We feel the industry should have the best possible information on the outlook for the supply of its raw material. But we think something is wrong when a possible difference of 115,000 bales, in a crop involving millions of bales, upsets the price structure of a basic industry. . . . . What to do about it? On the negative side, as indicated above, we certainly would not recommend discontinuance of the Government reports. Nor do we think speculative reactions in the raw cotton market can be prevented. The only other answer is that manufacturers should "sit tight" during these temperamental flurries. They don't mean a thing. The basic outlook was exactly the same at 11.01 a.m. on Oct. 8 as it was at 10.59. Any resulting weakening of price ideas, on the part of manufacturers, was folly—and expensive folly.

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"IT DIDN'T take any nerve," said S. Odenheimer, president of Lane Cotton Mills Co., New Orleans, in discussing the completion of an extensive expansion program: "my experience has taught me to buy when everybody else is selling, and to sell when everybody else is buying." . . . . As a matter of fact, we think it would take a good deal of nerve for the average textile manufacturer to indulge in actual plant expansion at present. But Mr. Odenheimer's remarks can be applied to another possibility: plant modernization. We can't imagine a better time than the present for such activity. Costs are at rock-bottom; the best of skilled labor is available. More important still, every job initiated means employment of more workers, increased purchasing power, and broader markets for textile products. That, in essence, is the doctrine being preached by the Committee on Industrial Rehabilitation, headed by A. W. Robertson—and it is a sound one. . . . . Incidentally, after wandering among the booths at the Southern Textile Exposition last month, we were convinced that it takes a lot of nerve for the average manufacturer *not* to go over his whole plant and invest every cent he can legitimately expend in bringing it up to date. And that kind of nerve eventually leads to the jitters.

Editorial Wins Recognition

AND IS AS APPLICABLE TODAY

AS IT WAS WHEN WRITTEN

SECOND PRIZE in the Associated Business Papers Awards for best editorial published in 1931 has been awarded to Douglas G. Woolf for his editorial "Bunk or Belief?" which appeared in the Sept. 5, 1931 issue of TEXTILE WORLD. *Since the thought expressed therein is as applicable to today's conditions in the textile industry as it was to those existing at the time the editorial was written, it is reproduced herewith. . . . The Associated Business Papers, Inc., comprises in its membership 116 of the leading publications devoted to the interests of industry and business.*

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Editor: DOUGLAS G. WOOLF

Bunk or Belief?

"DO YOU really believe the textile industry is making progress, that it has a good chance of achieving fairly stable prosperity; or are the things you write just editorial bunk? Is the wish possibly father to the thought?"

This question was put to us the other day.

It's a fair question. It's an important one, too—not in so far as it relates to the editorial policy of this particular publication, but in its bearing on the industry itself.

Frankly, we tend toward the optimistic rather than the pessimistic. A bad situation never seems entirely hopeless to us; a step in advance is apt to assume more importance, as a trend, than actual results may seem to warrant at the moment.

However, we know positively that we have not been imagining the progress we have discussed editorially. Some of this progress, we admit, cannot be shown on charts nor reflected as yet in financial statements, but it is very real and potentially effective if not allowed to fade away.

▼

There is, first, the advance in cooperative thinking. This has been demonstrated in many ways: in the coordinated approach to the job of balancing production with demand; in the united stand taken on such matters as hours of labor, night work, etc.; in the aggressive promotional drives to popularize the individual fibers; in the mass consideration of cost principles; in the development of new uses; in the cooperative study of trade practices.

However this would not be sufficient, in itself. We have indicated in the past our appreciation of the limits of cooperation. We have no faith in, nor desire for, a Utopian state in which all units will prosper equally, and in which weak companies are supported by the strong.

Concurrently with this coordinated development has ensued saner action within individual mills. This has been demonstrated in such ways as: alert mechandising methods; well-balanced programs of modernization; heroic changes in products to meet new market demands; re-vamping of manufacturing procedure; adjustment of labor relations policies to new conditions; greater utilization of technically trained men.

There has been, we repeat, this simultaneous advance in thinking and practice, both cooperative and individual. Much of it has been concentrated within the last five years, and was the direct result of prolonged depression.

▼

Why, then, is not the industry on a financially successful basis? [For we admit, of course, that it is not.]

The answer, we believe, is found very largely in the fact that, to date, the most progressive thinking has not penetrated to a sufficiently large number of individual units. The majority of textile manufacturers, we believe, are still holding on to the past; are hoping against hope, for the return of the "good old days"; are not aware of the fact that the new competition is here to stay, and must be met. Consequently the comparatively few successes are overshadowed by the overwhelming number of failures or near-failures.

Our oft-expressed confidence in the fact that the industry is on the right track, is *not* editorial bunk. We believe it sincerely, and do not expect to be proved wrong. But definite assurance that it will continue on that track, or that it will proceed speedily and surely to the ultimate destination, success, can be supplied only by more general participation on the part of individuals. Thus far, we regret to say, that assurance has not been forth-coming.

Greenville Show. . .

A MILESTONE OF TECHNICAL PROGRESS

A LARGE number of the many southern textile men who as a matter of course journeyed to Greenville, S. C., to attend the Tenth Southern Textile Exposition during the week of Oct. 17 did so with the expectation that the recent lean years would have seriously reduced the impressiveness and importance of this notable biennial event. They were pleasantly surprised. The show proved to be smaller in number of exhibits, but there was an impressive amount of heavy machinery in continuous operation, and the many exhibits of new textile-mill equipment made clear that we are passing through a period of great progress in manufacturing technology. The attendance was remarkably high.

The exposition was opened Oct. 17 by W. G. Sirrine, president of the Textile Hall Corp. S. T. Hubbard, Jr. Hubbard Bros. & Co., New York, spoke encouragingly of the textile outlook. In the evening a style show was staged by the Cotton-Textile Institute.

A few examples will serve to indicate the general importance of the new equipment shown. Consider, for instance, the drawing frame fed with a sliver lap, the mechanically variable-speed spinning, the combination up-and-down twister, the warper running at 900 yd. per min., the shuttle-changing loom running continuously during replacement of the filling, the automatic wide 6-oz. duck loom operating smoothly at 132 picks per minute, and the electrically controlled constant-speed dye jig. In our October issue all the equipment on display was listed. In this article we shall specify in more detail the 1932 products which were shown.

Preparatory Processes

Some interesting developments in cotton cleaning and picking processes were shown. One manufacturer demonstrated equipment for opening, cleaning, mixing, and conveying raw cotton, built in 10-ft. sections that can be assembled into any desired length, in which the "gyrator" principle of cleaning cotton is employed. The machine consists primarily of three connecting rods to which staggered spring-steel fingers are attached. These fingers have a gyratory movement and propel the raw stock over a long section of grid bars, thus opening the cotton and permitting dirt and trash to drop out.

Designed to fit old pickers, a positive stop motion which was said to insure measuring more accurately the right length for every picker lap was featured by one manufacturer. This stop motion, which is an adaptation of an English device, employs two special gears which are driven by another gear mounted on the calender roll instead of the worm. Extra teeth (or "hunting teeth") on the sides of these two larger gears mesh at the proper time for stopping the picker.

Another recent development in the conditioning of cotton was exhibited at the Greenville show for the first time. This method involves the application of oil to the stock in the picking process, the point of application being between the upper grid bar and the feed roll in the beater chamber. The oil is sprayed through a unit of sixteen nozzles by means of a positive displacement pump driven from the screen shaft. Advantages claimed for this system are a more uniform distribution of oil and better cleaning of the stock, since the oil is not applied until after all cleaning is done.

Attracting considerable attention at the show was a new "controlled draft" system of drawing which consists of an improved lap winder and a multi-roller drawing frame. The lap winder forms individual card slivers into compact laps containing sufficient stock to fill completely a 12-in. roving can. The lap winder has been designed to reduce the distance that the sliver travels while out of control to a minimum, the card-sliver cans being placed directly under the lifting rolls, eight cans on each side. There is a stop motion at the back to insure the full number of slivers being up at all times.

The drawing frame itself has several features radically different from the conventional type. The laps made on the lap winder are placed at the back of the frame, one lap to each delivery, on ratchet tooth carrier rolls. Since each lap exactly fills one roving can, machine stoppages under normal operating conditions have been greatly reduced, as no piecing-up at the back is necessary. The machine is provided with five pairs of rolls, the back rolls having a coarse pitch, with coarse fluting, while each succeeding line toward the front is progressively finer with regard to fluting. The three top rolls nearest the front are cork covered and equipped with roller bearings. The coiler head has an improved tube gear which increases the amount of sliver in the can from 15% to 25% more than was possible with older types of tube gear. This new drawing frame is said to produce more even sliver and greater yarn strength.

Spinning and Twisting

Of outstanding interest in the spinning machinery was the variable-speed spinning equipment, which has been recently described in detail by TEXTILE WORLD.

The various systems of long-draft spinning were on exhibition; and while there were no radical changes in the frames, a number of improvements and refinements have been made. One manufacturer featured a spinning frame employing the four-roller system, drafting 18.57, spinning 26s yarn from 2.80-hank roving (double), with a front-roller speed of 123.7 r.p.m. This frame has a new-type saddle which permits the underclearer to be removed at the front of the machine. Link hinges on the clearer boards make it unnecessary to take out the entire clearer in order to pick the front rolls.

Of particular interest to manufacturers of fine-count crepe-twist yarns, both cotton and rayon, was a twister designed primarily to provide high production per square foot of floor space. The most interesting feature of this dual-type twister is the principle of the revolving creel bobbins. The creel or delivery spindles revolves at the same speed as the receiving spindles which carry the

bobbins of twisted yarn. Hence twist is inserted at two places in the yarn simultaneously. The path of the yarn is as follows: Leaving the revolving supply package in the creel, it passes through a flyer just above and upward to rolls at the top of the frame, then downward through the water pan, through the traveler, and onto the bobbin. Since twist is inserted in the yarn both before and after it passes through the drawing rolls, it is possible for the rolls to revolve twice as fast as the usual speed of front rolls on the conventional-type cotton twister. Each of the two spindles on the dual-type twister operates at 9,000 r.p.m., giving a twist equivalent to what would theoretically be afforded by an ordinary twister having the same delivery and a spindle speed of 18,000 r.p.m. The tapes are so arranged that one tape drives eight spindles, four on the upper rail and four on the lower rail; but it is possible to stop any given pair of spindles without slowing up the other six in the same group. It is claimed that the production of wet-twist rayon yarn can be accomplished on this twister without loss of denier as a result of excessive elongation, eliminating need for a separate tinting or for a twist setting operation.

One manufacturer showed a doubler-twister for silk, rayon, and fine cotton in operation with several interesting improvements, including a new ball-bearing lap-proof separator roll which may be adjusted to give any desired spacing of threads on the feed roll, two-speed motor, and self-oiling rings.

A new cleaning mechanism for spinning frames, drawing frames, and winders was introduced at the show. The type shown consists of a small motor, fan, and carriage which travel along a double steel-rail track mounted on the creel board of the spinning frame. The traveling cleaner reverses automatically and operates from one end of the machine to the other, or over as many machines as are covered by the track.

Winding, Spooling, and Warping

Winders and spoolers were exhibited operating at higher speeds than formerly. The circulating-type winder was handling various kinds of cone winding and operating with an 8-in. traverse. Improvements on the cone winder exhibited by another manufacturer included an automatic chain bobbin conveyor and a new combination tensioning and slub-catching device. Still another machine, which employs the grooved drum instead of the vibrating thread guide, has been adapted for winding knitting cones at high speeds, and the machine on exhibition was operating at 750 yd. per min. An improved cone winder for silk and rayon, built somewhat along the general lines of a previous model, but now driven by an endless belt, without the clutch feature, is of heavier construction than previous models. The manufacturer of high-speed spooling and warping equipment showed an improved automatic spooler and super-speed warper. The spooler differs from former types of this equipment in that the knotter has been redesigned to operate at higher speed and to tie knots with much shorter tails than was possible with previous models. The most recent change in this spooler is the addition of a blowing mechanism which, being attached to the traveler, forces a strong current of air through the units and into the bobbin pockets for removing lint.

The most noticeable improvement, however, is in the warper and creel. This machinery, warping at 900 yd. per min., operates over-end from stationary yarn packages held in containers. The package containers in this new type of creel are moved into the inside of the creel when they are empty, the outside positions being taken by other containers in which full yarn packages have been placed. This arrangement insures a minimum amount of time lost in creeling the warper.

Weaving

Without stopping or losing a pick, a new shuttle-changing loom for rayon and fine cotton was running on two-shade rayon, 150-denier both ways, with bobbin filling. A soft, easy pick, which largely eliminates sloughing-off, is obtained on this loom by the elimination of daggers and the use of a yielding reed. A new semi-low-roll rayon take-up with 6-in. take-up roll covered with rubber and an easily removable cloth roll are provided. The let-off is of the Roper type with double impulse and hand warp release. As a shuttle changer, this loom gives a first-pick tension.

Operating smoothly at 132 picks per minute, a new automatic loom was weaving 60-in. No. 6 duck. It is capable of handling hard duck in widths from 32 to 72

View from main entrance to Textile Hall showing first-floor displays

in. It can take a beam head 32 in. in diameter and bobbins up to 9½ in. in length.

Because there is a growing tendency for weavers to work in the back alley, the X-model loom, which operates at a practical speed of 192 picks per minute, has been equipped with three shipper handles, two in front and one in back. As the weaver may stop the loom by means of the stop-motion indicators at the warp, this arrangement affords two means of stopping the loom and one of starting it without leaving the beam alley. A shipper-locking device prevents starting the loom when the fixer is in the other alley. A new battery applied to this loom has a reversible swinging bobbin support designed to prevent turning of the bobbins. A new sheave type of roll and shaft top with rolls on the side of the loom is easier on the warp and brings the harnesses closer together. Roller bearings are used at crankshaft, bottom shaft, and rocker shaft.

The idea of using heddles as drop wires in a warp stop motion has now been carried a little further by the development of an electrical harness warp stop motion. In this case the wide portion at the upper part of the steel heddle has two holes, one for the upper supporting bar and one for a typical stop-motion bar, containing a raised insulated rib. When a warp thread breaks, the heddle in falling comes to rest on the top of the rib, making the electrical contact which serves to stop the loom. This stop motion can be attached to any loom and is suitable for the warp drawing-in machine. The loom demonstrated with this equipment at Greenville was also provided with a means for automatically stopping the machine when a harness cord or strap breaks. A metal finger projects from the top of the harness and strikes a contact point when the harness drops, thus completing an electric circuit and stopping the loom.

Other developments of interest to the weave room include a steel jacquard doup or leno heddle designed to operate satisfactorily during the occasional twisting of the heddle; a hook reed which permits cotton mills to use their present slasher equipment for rayon warp, facilitating the forming of a lease and making possible the use of the warp twisting-in machine; an uncut velvet Lancett heddle said to permit a character of uncut-pile work not previously undertaken in this country; and shuttles made from dogwood tempered by a new process to afford increased strength and elasticity.

Dyeing and Finishing

Typical of the present-day trend toward automatic electrical control of processes is a new constant-speed dye jig, which was shown in operation. Each roll is driven by an individual motor; and while one motor is driving, the other acts as a generator to supply a supplementary current. The amount of this supplementary current can be varied at will as one means of controlling the machine operation. A strong beam of light is directed along the edge of each roll toward a photo-electric cell, the latter reversing the operation of the machine when the roll of cloth has run down to its last layers, permitting the light to strike the cell. An electric counter stops the jig automatically after a given number of runs. To avoid settling of dye liquor in cloth roll while jig is idle, the machine can be made to reverse automatically as many times as required with a run of only a yard or two. After the series of full runs is completed, the cloth is wound up on one roll without attention from the operator. All the electrical-control equipment, which governs the operations mentioned above as well as the constant tension and constant speed, is contained in one metal casing on the side of the jig.

A package-dyeing machine for tops, yarns, beams, raw stock, card sliver, and roving has recently changed hands and been improved. It is designed for even pressure throughout the length of the kier, whether dyeing from the inside out or from the outside in. An air-tight by-tank permits dyeing vat colors as well as direct, sulphur, napthol, etc. It has a flexibility of production ranging from 25 to 3,200 lb. in one color or shade.

A circulating skein-dyeing machine has been equipped with an electrically timed drive, a new dye-feeding device, a guard and emergency stopping device, and a simplified switch control. The machine has also been lowered to facilitate loading and unloading.

Automatic protection of seams in a manner easily controlled by the operatives is provided by an electrical thrustor employing a push- and let-up oil pump on a shearing machine. It can be used not only for avoiding damage to seams, but can be adjusted to open up the shearing edges for any unevenness in the goods, including knots. The device has the advantage of protecting over the full width of the goods, this being accomplished by a metal feeler bar which extends the width of the machine and may be set at any desired distance from the goods.

Also demonstrated was a new combination brush and shear built to handle cloth in a vertical direction in order to save floor space.

Among the other finishing equipment shown was a new tenter clip which is to be standard equipment on a redesigned tenter shortly to be announced. The clip embodies an attachment for holding the swinging gate away from the plate during the return travel of the chain to the entering end of the machine, thus avoiding wear to both plate and insert blade.

A new contact point for electric guiders is mounted in a Bakelite cartridge which can be replaced as conveniently as a fuse. An improved butted seamer permits the insertion of three times as many stitches per inch as could be inserted in the old model, thus reducing the danger of turned selvages during subsequent processing.

Air Conditioning

In the way of humidifying equipment, a new "trunk system" was shown by one manufacturer. This consists of a "trunk" which is made of copper, but which can be furnished in any sheet metal, with outlets at intervals along its length. It may be hooked up in the following ways: (1) For humidifying only, it may be attached to certain types of humidifier, which can be operated at maximum evaporation, since there is no condensation to wet the floor. (2) For ventilating and humidifying, the first arrangement may be provided with an air intake. There is a damper to exclude outside air when not needed; and in the winter, when the cooling effect is not desired, all air can be taken from the room and recirculated. (3) For heating, ventilating, and humidifying, the second apparatus mentioned may be equipped with a unit-heater radiator, heated by steam, which supplies warm air during cold weather.

One of the manufacturers of opener- and picker-room equipment exhibited a recirculating air filter which is intended for use in connection with opening and picking machinery. The air filter consists of a fireproof framework 8 ft. 6 in. in height. Stretched over this are two

Large machinery set-ups featured the exhibits on second floor of Textile Hall

metal screens, separated from each other by a thin air space; and outside these screens are steel casings with louvres to permit a downward exit of the filtered air. There is a separate filter for each fan in the picker room. As the picker continues in operation, a thin layer of lint is built up between the inner and outer screens, and this felted mass serves as filter medium. The filter sheet may be removed about once a month.

Also among the new developments in humidifying equipment was a self-cleaning nozzle featured by one manufacturer. This has the advantage of cutting off quickly and is designed in such a way as to permit automatic self-cleaning, thus eliminating the necessity of frequent climbs upon a step-ladder. The automatic cleaning is accomplished by a mechanical movement in the nozzle orifice each time the water supply to the humidifier is shut off, either by hand or by automatic humidity controls.

Two manufacturers showed portable humidifiers, built in attractive cabinets, designed primarily for homes or offices. A new direct-reading relative-humidity and temperature recorder uses a hygroscopic element of laminated wood fibers assembled under heavy hydraulic pressure, this being said to afford accuracy on entire scale.

Power and Engineering

New or improved instruments designed for textile processing and other mill applications included a portable recording thermometer suitable for obtaining room or drying-chamber temperatures; and an air-operated controller with direct temperature or pressure selector and a pressure and temperature time cam easily set by the operator, the instrument being designed on a free-vane, full-floating principle for smooth and efficient operation.

A strong trend in favor of the inverted bucket type of steam trap was noticeable among the power and engineering exhibits. The reason for this change lies mainly in the automatic elimination of air which these traps make possible. New valves included one with a bevel-seated inner valve designed to eliminate wire-drawing; a self-sealing lubricated plug valve which eliminates the necessity for a stuffing box; and a roller-bearing diaphragm motor valve in which the spindle travels the entire throw with little friction. A thermostatic steam trap has been equipped with a differential setting feature for adjusting the closing point to any temperature.

Of particular interest in roller bearings were several types designed without inner races for applications where space is limited, such as in top drawing rolls, pitman rolls, spinning and twister cylinders, etc. Several roller bearings have been developed for use on dry cans.

A demonstration test was conducted by one manufacturer on the efficiency of the new "Research" leather belting, which is made from leather automatically measured for thickness and cemented and pressed while under actual working tension. Improved loom pickers made from "Research" leather in three thicknesses were also shown. Another interesting belt exhibited was a duck and rubber type in which the plies are built up on a curved surface in order that when the finished belt is bent over a pulley the outside ply will not be subjected to greater stress than the inner ply.

Of outstanding interest among the electrical exhibits were several new self-cleaning textile motors, these embodying a smooth surface for the windings designed to prevent the catching of lint, and a fan for blowing the lint out of the motor. New loom motors included one having a die-cast rotor assembled under 1,500 lb. pressure to bring all bars and rings compactly together, a drain for conducting oil to the outside of the motor, and a new oxide insulation placed directly on the wire and designed to stand excessive overload; and a motor of the constant-speed squirrel-cage induction type having greater oil capacity of the bearings and a reserve work capacity for meeting unusual conditions.

Among the new auxiliary equipment was an improved ball-bearing electric telescoping cotton stacker, the edges of the platform being turned down so that bagging will not hang, and new-type guide wheels being set at an angle to roll flat on the upright flanges.

Cotton Institute Votes

TO DEAL WITH LEGISLATIVE MATTERS

BY changing the by-law, which excluded the organization from legislative and political activity, to read: "Authority for dealing with legislative matters shall rest with the executive committee," the Cotton-Textile Institute took an important forward step at its seventh annual meeting, held in New York, Oct. 19. In commenting on the vote of 379 in favor of the change and 30 against, George A. Sloan, president of the institute, expressed the opinion that the vote would have been unanimous if those who were opposed could have known that the executive committee firmly believed that very few projects should be taken up—trust law revision and tariff being mentioned—and had passed a resolution that no activity should be undertaken without the unanimous consent of those present.

Other features of the meeting were an earnest plea by Mr. Sloan that the industry establish "A Basis for Profits"; a call to assume leadership by Howard Coffin, nationally known industrialist; the election of officers, executive committee and directors; and a comprehensive display of new uses for cotton. Unfortunately, George S. Harris, of the Red Cross cotton distributing office, was unable to be present, but his address on Red Cross activities was mailed to members and will be found on page 89 in this issue.

The Annual Elections

At a meeting of the board of directors held the same day, George A. Sloan was re-elected president; B. B. Gossett, Charlotte, N. C., and Russell H. Leonard, Boston, were re-elected vice-presidents; Gerrish H. Milliken, New York, treasurer; and Paul B. Halstead, secretary.

New members of the executive committee include: Frank I. Neild, Neild Mfg. Co.; G. E. Buxton, B. B. & R. Knight Corp.; Cason J. Callaway, Callaway Mills; Geo. M. Wright, Republic Cotton Mills. Members re-elected include: Robert Amory, W. D. Anderson, H. L. Bailey, B. H. Borden, C. A. Cannon, Donald Comer, Stuart Cramer, Weston Howland, R. E. Henry, J. A. Law, H. F. Lippitt, G. H. Milliken.

The following directors were elected for terms of three years:

Robert Amory, Nashua Mfg. Co.; Howard Baetjer, Mt. Vernon-Woodberry Mills; H. L. Bailey, Wellington Sears Co.; John Bancroft, Jr., Jos. Bancroft & Sons Co.; B. H. Borden, M. C. D. Borden; W. H. Buckley, Baltic Mills; J. W. Cone, Proximity Mfg. Co.; S. W. Cramer, Cramerton Mills; J. C. Evins, Clifton Mfg. Co.; F. B. Gordon, Columbus Mfg. Co.; B. B. Gossett, Chadwick Hoskins Co.; Geo. Lanier, West Point Mfg. Co.; J. A. Law, Saxon Mills; R. H. Leonard, Pepperell Mfg. Co.; K. P. Lewis, Erwin Cotton Mills; H. F. Lippitt, Manville Jenckes Co.; R. T. Lyman, Boston; Allan McNab, New England-Southern Corp.; G. H. Milliken, Deering Milliken Co.; A. R. Pierce, Pierce Bros. Ltd.; G. P. Ray, Riverside & Dan River Cotton Mills; J. H. Separk, Textiles, Inc.; W. J. Vereen, Riverside Mfg. Co.; Malcolm D. Whitman, Nashawena Mills; C. M. Bailey, Lydia Cotton Mills. The following were elected for one year: T. E. Ramsdell, Monument Mills; J. A. Miller, Exposition Cotton Mills.

The Lesson of Cooperation

Howard Coffin, former head of the Hudson Motor Car Co. and who was active in war-work planning, stated in his address that he was not a textile expert and that he would confine his remarks largely to the history of cooperation in the automotive field. He went on to describe conditions as they existed about 1909 when there were no standard specifications for such items as tires, screw threads, etc., and when destructive patent litigation was impending. Conditions would have become unbearable, he stated, if the industry had not cooperated on standard engineering practice and had not entered a cross-licensing agreement. He pointed out that cooperation often meant scrapping of existing equipment, but that the industry has been sufficiently farsighted to look ahead. As far as the textile industry itself was concerned, he said that the difficulties confronting cooperation were certainly no greater than they had been in the automotive field and that continuing cooperative effort was necessary if the textile industry was to step into the position of industrial leadership justified by its position as the largest employer of industrial labor.

Among those who took part in the informal discussion were Louis Hall, president of the Textile Converters Association, who stated that his association lacked real cooperation; and W. D. Anderson of the Bibb Mfg. Co. who called upon the executives of the industry to realize their personal responsibility to better conditions. Messages from President Hoover, Walker D. Hines, and others were read.

Sloan Asks Industry to Become Profit-Minded

Stating that he would not follow the usual course of presenting a detailed account of the institute's activities for the last year, George A. Sloan confined his address to a statement of some of the facts brought out in a recent cost and operation survey and then analyzed the opportunities within the industry for stability and profits. Mr. Sloan's address follows, in part:

The survey already includes 767 mills from Virginia to Texas representing a total of approximately 17,200,000 spindles. Comprehensive information was obtained from 712 of these mills, representing 16,150,000 spindles, data being unobtainable in the remaining cases—either because a mill had been closed for a long period, was in process of liquidation or, in a few remote instances, because of the unwillingness of the management to provide information.

In respect to cost methods it was found that approximately 61% of the mills, on a spindleage basis, are reasonably well informed as to the costs of their various products. This denotes a great advance in the prevalence of proper cost systems during recent years, as our estimates, based on the best available advice, indicate that in 1925 adequate cost

methods were used by not over 26% of the same mills.

As to operating schedules, this canvass has developed some equally useful information. On a spindleage basis, a standard operating schedule of 55 hours for the day shift is observed by 89% of the mills consulted. A standard 60-hour schedule for day operations was indicated in only 8% of the mills. 43% of these mills normally operate a regular night shift. Of this night running spindleage 49% regard a 50-hour night shift as standard while 39% (of the above 43%) observe a night schedule of 55 hours.

In spite of the publicity recently given to increased night operation, this study brings to light a definite tendency on the part of many mills to abandon night operation, 18% of those consulted (comprising 2,500,000 spindles) having, within recent years, eliminated regular night shifts.

One of the most important objectives in the institute's educational work is the development of a mental attitude of sufficient breadth and flexibility to keep production constantly balanced with demand. Other problems have been clearly recognized but we continue to regard the avoidance of overproduction as the first step toward orderly and profitable merchandising.

I am not unmindful of a decided decrease in the industry's spindles. From the peak in 1924, when there were 37,939,772 spindles in place, there has been a shrinkage to 31,643,898 spindles, a decline of 16.6% in eight years. But we cannot overlook the promptness with which the average running time of the remaining spindles can be, and in many cases has been, increased.

During the past two years per capita consumption of cotton goods has declined approximately to the extent of 30% compared with 1927, whereas the decrease in the number of spindles in place since that time has amounted to but 15%. Obviously the results achieved in avoiding overproduction are in no sense due to the application of the "survival of the fittest" theory. They are due primarily to intelligent self-restraint in respect to operating schedules.

The records show that this year's production of carded and combed fabrics (excluding heavy industrial goods) has amounted to 70% of the 1929 production for the same period. Sales to date this year have been substantially ahead of production and have amounted to 82% of the 1929 production for the same period. Moreover, sales have been greater than last year and greater than two years ago. Another favorable development is the excess billings of goods over production, billings having amounted to 75% of the 1929 production. Owing to these excess billings, stocks have been greatly reduced since Jan. 1 and, according to the latest reports, are the lowest recorded for several years. In fact at the end of September they were 46% less than the three-year average for this date. Considering the state of business in general, this is a remarkable showing.

Despite this relatively high demand, there has been little or no profit, even in the month of August when we experienced the heaviest demand. The industry has not yet become profit-minded. One mill president stated publicly: "Our sales were enormous but at prices that were extremely unattractive and in most cases unprofitable." I take it that this experience has been common to many.

Granting all that can be reasonably charged to the depression and the difficulties involved in trying to make money when industry and agriculture generally are losing money, these developments nevertheless reveal an inherent weakness in our industry. They throw emphasis not upon how many yards are actually sold and the relation of production to sales but upon how many yards can be profitably offered for sale and justifiably manufactured. In the final analysis potential overproduction rather than actual overproduction is the ruling factor. The capacity for production is unquestionably larger than any demand that has ever developed. Some may not share this opiinon but who can place a limit on the development of night work?

It may occur to some that the industry has no right to be satisfied with figures showing a successful balancing of production during the last two years because it may seem to have been an unprofitable policy for many mills. But will it be unprofitable in the long run? Is it unreasonable to expect that profits will follow in logical sequence? I prefer to think that the industry has established a foundation upon which a profitable business structure can be built. I prefer to think that a few years' preparation is none too long, provided the mill executives continue the long-range planning to do which they are becoming more accustomed.

"They (statistics) throw emphasis not upon how many yards are actually sold and the relation of production to sales but upon how many yards can be profitably offered for sale and justifiably manufactured."

—George A. Sloan

During the past two years you have curtailed drastically and many of you have lost money. Meanwhile a small minority that did not curtail may have, acocrding to rumor, made money. The first impulse after such an experience is to condemn as futile all efforts of this kind but more sober thought raises the question as to what the consequences would be in the absence of intelligent self-restraint. No matter what your answer will be to that question the fact remains that the industry's basic position has greatly improved and to such an extent that it will emerge from this depression with a clearer perception of its responsibilities and opportunities as one of the major industries.

Our mills and selling agents have devoted a great amount of time and effort to cooperation. Those of us who have been fighting for this cause are fully aware of the obstacles that stand in the way of more complete realization of our objectives, of the growing need of "teeth" in cooperative measures and of the conviction among countless business men that some legal way must be found for bringing about a more general acceptance of those policies affecting industry and labor which have the unqualified support of the public and of a preponderant part of the industry. To be more specific, if certain elements within our industry continue to show an unwillingness to cooperate and an utter disrespect for trade and public sentiment, it is inevitable that some way will be found to bring about a more uniformly moderate work week and a more general confinement of production to daylight operation. Whether this will come through the establishment of governmental control or regulation is open to conjecture. I seriously question whether many business men are prepared to seek this form of relief. It is my belief that it should and will yet be accomplished through voluntary action. But if some are unwilling to improve conditions and to work toward more stabilized employment, try as much as we may to avoid it, you know and I know that sooner or later, somehow, some way, it is going to be done for us. And not nearly as well done as we ourselves can do it.

If the principle of the shorter work week was sound in January, 1930, surely there is an equal if not greater need today for the application of this principle. If there was an urgent need for the concentration of operations on the day shift in October, 1930, who would suggest that there should be an abandonment of this principle in October, 1932? If, when the institute was formed in 1926, there was an urgent need for the proper balancing of production with demand, where is the man who will stand today and say that this need no longer exists?

Hosiery and Underwear

Earl Constantine, managing director, National Association of Hosiery and Underwear Manufacturers

MANUFACTURERS ALL SET TO GO AFTER MEETING IN NEW YORK

THE National Association of Hosiery & Underwear Manufacturers is going places. At least that is the impression this observer took away from the executive conference held at the Waldorf-Astoria Hotel, New York, Oct. 26-27.

More important still, it is not only the association that is moving. Although in one sense the meeting represented a personal triumph for Earl Constantine, managing director, who in less than a year's service has made his vigorous leadership felt throughout the membership, in an even broader sense it represented the cumulative thinking of the industry itself. Into the drafting of the program of action went the effort of an Advisory Council of 43 men; into its subsequent consideration and adoption went the support and enthusiasm of about 200 manufacturers who attended the general meeting.

The program consists of a series of policy recommendations touching the fundamental problems confronting the industry. It embraces plans for coping with over-production; for collecting and disseminating current information on production and prices; for establishing an intelligent basis of cost determination; for correcting weakness in credit extension; for developing fairer conditions of sale which might be accepted as standard; for averting collapses in price structure which too often accompany perfectly normal seasonal slackening of demand; and for establishing standards which will improve the conditions of purchase, and the quality, of raw silk used by hosiery and underwear manufacturers.

Fortunately, this program is not a collection of inflexible manifestos. Each recommendation is tentative —subject to the further thinking of the Advisory Council and of the membership at large; and subject to the continuing endorsement and support of the members. In fact, the program as adopted by the meeting may truly be termed a work-sheet.

An all-star cast interpreted the new plans of the organization to the meeting. In addition to Mr. Constantine who read the policy recommendations and expanded on them, William Meyer, president of the association, presided and contributed much to the discussion; John W. Mettler, past-president, took the chair during the presentation of the program and outlined certain fundamental factors underlying it; Dr. George W. Taylor, of University of Pennsylvania, described briefly the plans for a statistical service; W. J. Hinson, of Miller, Franklin & Co., discussed the procedure on cost determination developed by his company in collaboration with Ralph E. Loper & Co.; E. N. Ditton, of Gotham Silk Hosiery Co., summarized the activities of the raw silk committee; Rufus W. Scott, of Tubize Chatillon Corp. and Paolino Gerli, president of the Silk Association of America, outlined the current position of rayon and silk, respectively. The remarks of the last two men appear on page 67.

Amplifying the brief statement of statistical plans contained in the program, Dr. Taylor stated that these would embrace weekly reports from each branch of the industry covering total dozens of pairs shipped and total invoice value of shipments, thus affording a unit price index for comparison; monthly reports on production, shipments, orders booked, and stocks; and semi-annual reports summarizing the statistical position of the industry. He made it clear that it would be necessary to have at least 60% of production in each group represented in these reports if they were to be developed; also that it was thought advisable to limit the arrangement for a short period only, subject to renewal.

In addition to the preparation of a simple manual on "Hosiery Cost Finding for Selling Price Guidance" which will be made available to members in the near future, there also has been worked out a plan whereby manufacturers may secure consulting service from the two firms mentioned above, at an extremely low per diem cost, plus travel expense. This proposed procedure was outlined during Mr. Hinson's talk.

In connection with the plans of the raw silk committee, it was stated that, in an attempt to work out methods of test for silk to be used for knitting specifically, the investigation thus far indicates that the seriplane is not the complete answer to the problem, as it depends upon the human eye and it is felt greater accuracy is needed. It was admitted that the knitter has been a chronic complainer and has not offered constructive suggestions; it is hoped to change that condition and also to consider the legitimate interests of the importer.

In his remarks prior to the presentation of the policy recommendations, Mr. Mettler expressed the belief that, judging from the experience of past economic crises, the depression is about three-fourths over; that we have just had the first real "bulge," and that we will have more "bulges," one of which will "take us out."

He advanced the following fundamental thoughts: (1) Production must be balanced with consumption and to that end vital statistics are necessary. (2) Dealers are now ready for higher prices—and want them. (3) Manufacturers must discard the policy of running mills full blast all the time and selling as they can. (4) It should be determined, by a certain definite date, to have houses in order and budgets balanced, by eliminating non-profit goods and by manufacturing only those goods which can be sold at a profit. He concluded with a glowing tribute to Mr. Constantine.

The policy recommendations, as developed by the Advisory Council and endorsed by the membership, are abstracted below:

Over-Capacity: No industry has escaped the effects of the world-wide economic difficulties of the last three years. . . . Like many other industries, ours is equipped with larger productive capacity than is required by the normal demand which may be expected . . .

Our overcapacity undoubtedly constitutes one of the principal problems of the industry. We believe that it must be approached and dealt with through several means, and we recommend favorable consideration of the following:

1. Most mills have some equipment which is obsolete through age or through change in demand. As long as this equipment remains set up for production, it invites use, and resulting contribution to over-production. In addition, its use is likely to tend toward maintaining a lower market on the product. Managements which possess such equipment should give consideration to scrapping it . . .
2. Forced sales place equipment on the market at very low prices. . . . Consideration is being given to practical and legal means by which such distress equipment may be acquired and prevented from offering unfair competition.
3. The two means just referred to are in the nature of reducing existing installed capacity. Some industries have approached their problem of over-capacity along the path of agreeing to place limits upon the use of the installed equipment. The experience of such efforts are being examined to find out whether anything of that character would be feasible and desirable in our industry.

Price and Production Guides Necessary: Our market is over-run with rumors and reports which tend to disturb prices. The sooner we supplant rumor with fact, the sooner we will be able to maintain a reasonable standard of prices. . . .

Our association will shortly offer a service which will furnish current information on both production and prices. Like any such services, it will require regular and prompt reporting by the mills which participate. We believe that every mill should participate in this reporting for a trial period, after which its operations may be reviewed and necessary changes and improvements made. The reports of the individual mills will be regarded as confidential, and the group participating in the service will receive a composite which will be of incalculable value. . . .

Costs and Prices: The object of business is profit. . . . Our industry has seen very limited profit during the last three years. Goods have been sold at prices below cost, either knowingly or unknowingly. . . . We believe that too often prices are quoted below cost for lack of adequate understanding of costs. The splendid work which has been done by our association in the past on the subject of cost accounting, will shortly be supplemented with a brief manual which will deal with the subject in its simplest form and furnish workable guides for the proper estimating of costs. With the issuance of such manual, it is proposed to offer our mills the service of expert field engineers at cost, who will be prepared to advise the mill management on this all-important problem. . . .

Credits: Business in our country rests to a great extent on credit. . . . The policies of most mills probably flex in favor of the customer of good character and good record, while imposing limitations on the customer of less favorable record, thus placing a premium on business ethics and on a meeting of obligations. The principles we have just stated as applicable to the hosiery manufacturer are applicable with equal force to the supplier of our commodities and equipment. The established hosiery or underwear manufacturer, at a time when the industry is over-capacitated, has a right to feel that new and unproven management must not be encouraged through easy terms and extended credit.

Conditions of Sale: The association has recently been studying the forms of sales contracts used in the industry, with the purpose of suggesting a few fair and basic conditions of sale, which might be generally accepted by the industry as standard . . . The adoption of a standard practice would operate in favor of responsibility on the part of both seller and buyer, and would make for stability.

Long time contracts, as a general rule, operate not alone against the interests of the manufacturer, but equally against the interests of the buyer, and therefore should be avoided wherever possible.

Consignments: Experience has taught us the lesson that the placing of merchandise on consignment is unsound and undesirable. Such practice favors the consignee and not the consignor. . . . We can recognize special circumstances, such as distance, which may warrant an exception to the rule, but as a general sound rule we regard the practice of consignment as undesirable.

Normal Fluctuations in Demand: A careful study of all available data over a period of years, covering not only the volume of orders received and shipments made by our mills, but equally the sales records of representative retail outlets, reveals that there are certain peaks and valleys in the consumption of our products, which occur at substantially the same points in the calendar, year in, year out. . . . Roughly speaking, the demand upon our mills experiences a sharp drop around December and January, and again around June and July. This would indicate that the industry ought to anticipate this decreased demand, and expect its operations to slow down at such points on the calendar. . . . If we could understand that all mills are experiencing the same slackening of demand during such periods, we would be willing and prepared to take our share of such slackening, and we would realize the unsoundness of cutting prices, for if we would maintain our price structure for the 30 or 60 days, we would each get our share of the available business, and at prices which would show a better net result . . .

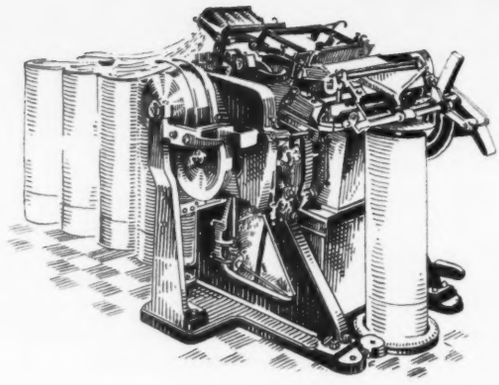
William Meyer, president

Our Silk Problem: Your association recently created a very able committee whose purpose it is to study this problem and to offer such constructive suggestions to the Silk Association as will tend to improve the conditions under which silk is purchased, as well as improve the quality of silk available for the industry. . . .

Conclusion: Our industries are among those which have experienced unusually rapid growth in recent years. It is easy to understand that during such expansion we did not find the need for programing for the industry as a whole. With our expansion brought to an end, and with the recognition of the fact that we are considerably over-capacitated, the necessity for conference and for agreement on broad policies is imperative. Wisdom invites us to recognize that the fortunes of each and every plant are allied with the general fortunes of the industry. None of us can be sufficient unto ourselves.

French Comb

IS PRACTICAL FOR LONG WOOLS



By L. M. Harless

NUMEROUS references have been made during recent years to the satisfactory production of tops from short combing and long clothing wools on the French comb. These many statements have led to the belief that this comb is useful only for short wools. This is not so. The French comb is a most accommodating machine; and while wools far too short to be combed on other machines can be handled on this comb, wools which in England would normally be recommended for treatment on the Lister comb can be successfully treated on it. Other machines may be more productive on long wools, but the new and wider French combs are capable of competing with them, not from the unit-machine basis but from the floor-space and operative-unit production.

Long luster wools; crossbreds from Australia, New Zealand, and Buenos Aires of 40s quality upwards; and medium and down wools can be made into tops without difficulty on the French comb. Special settings and adjustments will be made to obtain the best results; and feeding, combing, and drawing off will need attention.

It has been constantly emphasized that preparation for the French comb is more exacting than for other machines, and this is quite true so far as long wools are concerned. Unopened clusters of fibers and irregular thicknesses of slivers cause much trouble when the pins of the comb barrel are acting. With uneven slivers some of the uncontrolled short fibers in the thinner slivers are plucked by the comb pins and give excessive noil. Unopened wools lead to wear and tear on the machine parts, particularly on the comb pins. Wools of this nature are too long to be carded and are made into slivers by a set of preparing gill boxes. Neps are avoided, but slubs or lumps abound. The tear is improved, the noil is worth a little more, and the cost of preparing is slightly less. The slubs, however, may damage comb pins and lead to more repinning, to some extent balancing the advantages.

The feed of the French comb is largely governed by the quality of the wool and the tear. For example, a heavy, dense wool like 40s quality would be fed in much more quickly than a 60s wool, the latter being fuller and less dense. Also, suppose we were considering the rates of feed for a good-length 60s giving a tear of ten to one, and for a short 60s giving a tear of $2\frac{1}{2}$ to one. The feeds would be arranged so that the amount of top coming from each comb would be almost the same, but slightly in favor of the better-yielding wool. The feeds would be in the ratio of 16 to 15 in favor of the shorter material.

The position of the slivers in the feeding gill and nip jaws is also very important when long wools are being combed. Crossed slivers open the nip jaws and give extra noil by allowing some long fibers to be carried down by the comb circle. The position of the slivers is regulated by the feed plate, and care should be taken when setting in new slivers to place them clear of each other. The length of feed given to the slivers is regulated by the tear required (or the tear possible). Short combing wools tear on an average about six to one. The length of feed should be at the rate of $\frac{1}{3}$ in. per dab. Down wool may be given a $\frac{5}{8}$-in. feed, whereas recombed noil will be given only about a $\frac{1}{6}$-in. feed. The amount of noil removed at each nip may be taken to determine the rate of feed. When this is excessive, a short feed is necessary to prevent too great a tearage and filling up of the comb pins with noil. In the case of long wools, where the noil is 1/20 of the fringe, the length of feed may be increased with a corresponding increase in production. A comb working on ordinary merino will comb 100 lb. per day. On long wools a production of 200 lb. per day can be obtained.

The adjustments necessary for increasing the feed are (1) a longer sweep of the feed box and (2) an increase in the speed of the feed rollers. A pawl-and-ratchet arrangement governs the latter, and only a change of the ratchet wheel is necessary. A comb moving at 100 nips per minute with $\frac{1}{3}$-in. feed needs a delivery of 33 in. per minute. When a $\frac{3}{4}$-in. feed is given, the feed rollers are set to deliver 75 in. per minute.

The sword action of this comb is very necessary when long wools are combed. The sword acts as a whip and detaches the tail end of fibers from the feed slivers after drawing-off. This is done by the downward action of the top sword, which, as soon as the drawing-off rollers move outward, sweeps the end of the fringe under the drawing-off leather. The counter sword acts as a barrier to prevent any of the combed fibers becoming disengaged in the comb cylinder by moving upwards as soon as the drawing-off is completed. A common fault in combing long wools is buckled fibers on the drawing-off leather. This is entirely due to the imperfect action of the swords, and can usually be remedied by giving the sword an earlier movement.

Influence of Feeding and Tearing on Production
(Based on 100 Nips per Minute)

Length of Feed (In.)	Number of Ends Feeding	Weight of Ends (Drams 40 Yd.)	Feed per Day (Lb.)	Ratio	Delivery Top	Delivery Noil
$\frac{1}{2}$	20	259	$112\frac{1}{2}$	2/1	75	$37\frac{1}{2}$
$\frac{5}{8}$	20	205	107	3/1	80	27
$\frac{3}{4}$	16	204	106	4/1	85	21
$\frac{7}{8}$	16	201	105	6/1	90	15
1	12	169	132	10/1	120	12
$1\frac{1}{4}$	12	157	153	16/1	144	9
$1\frac{1}{2}$	8	215	168	20/1	160	8
$1\frac{3}{4}$	8	228	208	25/1	200	8

Silk and Rayon Position

OUTLINED FRANKLY BY GERLI AND SCOTT

Paolino Gerli, president, Silk Association of America

IN JUST about one hour, at the conference of the National Association of Hosiery & Underwear Manufacturers in New York Oct. 27, there were presented more salient facts regarding the current position of silk and rayon than ordinarily might be expected from an all-day discussion of these two fibers. The authorities who presented these facts were, respectively, Paolino Gerli, president of the Silk Association of America, and Rufus W. Scott, of the Tubize Chatillon Corp.

The gravity of the Japanese silk situation was depicted by Mr. Gerli in a remarkably frank address. Briefly, the danger, in his opinion, lies in the possibility of 100% governmental control of production and distribution, including the price feature. Legislative moves to that end, he stated, will be made at an early date by what he termed the "younger element" in Japanese politics. "Those of you who have fought governmental control in business will understand what we in the silk business are up against," he remarked.

As background information bearing on this situation, he stated that, when the stocks of so-called syndicate silk were sold last April by the Japanese authorities to the Asahi Corp., to be distributed in this country by E. Gerli & Co., the purchasers made the proviso that they were to exercise some form of control over the production of raw silk, and also that this control was to be extended over the filatures. As is well-known, a change in government brought about cancellation of the syndicate purchase. The new situation which has developed, as outlined above, is considered by Mr. Gerli as important enough to require the best thinking of silk consumers in this country. To that end, he expressed his intention of calling a meeting to which the knitters would be invited.

So far as the statistical position of silk is concerned, Mr. Gerli regards it as entirely sound. Of the 98,000 bales of syndicate silk, he considers at least a half unsuitable for American use. On the basis of the government promise that these stocks would not go into competitive channels; with the outlook for a 10 to 15% reduction in crop this year, and with low stocks in the Far East and the absence of excessive stocks here, he sees nothing to fear from the technical position of silk insofar as its effect upon the price structure is concerned. Furthermore, he feels that the defeatist attitude in Japan has been corrected and that that country is not apt to be stampeded toward price collapse.

Stating that silk manufacturers "do not exist any more; they are working on rayon today, cotton tomorrow and linen the next day if it offers a chance for a profit," Mr. Gerli visualized the knitters as the really steady consumers of silk in the future.

No Real Shortage in Rayon

There is no shortage of capacity in the rayon industry and consequently no extended shortage of the yarn is to be expected, stated Mr. Scott. The scarcity which developed this fall was credited by the speaker to the sharp curtailment of production in the early summer which, he remarked, "now appears to have been ill-advised."

Referring to the record consumption of 151,000,000 lb. of rayon in this country in the year of depression 1931, Mr. Scott expressed the opinion that this was due to the inroads made by the synthetic fiber into cotton and other low-bracket textile materials. He does not visualize rayon as a real competitor of silk. Incidentally the latter statement was questioned by Mr. Gerli who commented that he has never been so apprehensive regarding the inroads of rayon into the silk field, particularly in broadsilks, as he has been during the last two or three months.

The rayon industry will continue to be simply another yarn business, declared Mr. Scott. There has been a lot of bunk and ballyhoo, especially with regard to secrecy surrounding technical developments. The bonanza days are over, he said, thus reasserting the opinion expressed by him in a recent interview in TEXTILE WORLD. In poundage, he believes, the industry will go way beyond what we now conceive.

Mr. Scott sees no reason why a stable price situation should not prevail; it is not necessary to produce in excess of consumption. He doubts that there will ever be violent price fluctuations again. He recognizes the need for the injection of some "sacred element" into the contract for the sale of rayon.

Yarn Robbing...

A PROBLEM UNSOLVED IN CIRCULAR-HOSIERY KNITTING

By
Walter A. Simond

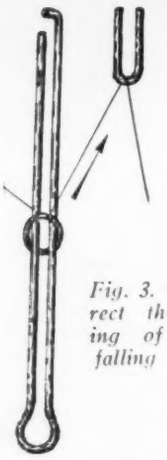


Fig. 3. Correct threading of the falling ring

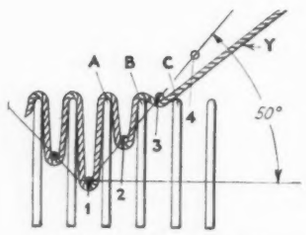


Fig. 1. Yarn bent at sharp angles

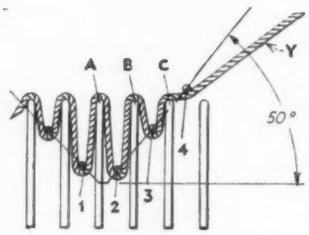


Fig. 2. How robbing occurs

MUCH of the yarn cutting which occurs in the knitting of circular hosiery is due to the defect known as "yarn robbing," which is inherent in the knitting operation. Mr. Simond offers seven practical suggestions for the fixer to follow in his endeavors to avoid the damage which robbing causes and relates how inventors are striving to eliminate this difficulty altogether.

EVERY knitter and fixer of knitting machines of the circular-hosiery type, in which the needles are independently operated, has been perplexed many times by the persistency of cutting which appears in the fabric, particularly in the heels and toes. This problem has been carefully discussed by M. C. Miller in his recently published book, "Principles of Knitting." For the benefit of those who may not have read this treatise, I shall outline the problem briefly. I shall also offer some suggestions regarding the corrective measures which experience has found to be profitable. A thorough understanding of the knitting action is necessary in order that we may do the right things to overcome the difficulty so frequently encountered.

When I first began to knit on seamless machines, the cuff or top was picked on to the latch needles and a weight was fastened to the top to hold the fabric down. Each machine was equipped with two cylinders, the topper filling one while the other was in the machine. In the early 1890's we used the first machines fitted with sinkers, sometimes called webholders. The machines were thought to be quite fine, the $3\frac{3}{4}$-in. machines having 160 needles. The sinkers were far enough apart to allow the use of a 45° angle on the edge of the cam which drew the yarn for the formation of the stitches. Since that time there has been a constant trend toward finer gages in latch-needle machines, and now machines are being used which have over 400 needles in $4\frac{1}{2}$-in. cylinders for plain fabric. These fine machines knit the fancy cuffs for full-fashioned hosiery, and would not be likely to give satisfactory results for complete stockings.

Our problem will best be understood by reference to the drawings, in which the sinkers are designated by letters, the cross-sections of the needle hooks by numerals, and the yarn as *Y*.

When, in Fig. 1, the needle with hook 1 has reached its lowest point, we see that the yarn *Y* is very sharply bent around both hook 1 and sinker *A*. It is also in contact with hooks 2 and 3—and with sinker *B*, if the sinkers are closely spaced, as in all fine machines. We also note the nearness of yarn *Y* to the top edge of sinker *C*. It is evident a little longer stitch would bring this sinker *C* in contact at the same instant of timing, because when we raise the needle cylinder to lengthen the stitch, all of the needles in the machine are drawn deeper into the sinkers by the stitch cams. Since we know from experience that the sharpness of the bends in the yarn and the number of contacts determine the amount of tension applied to a yarn while being formed into stitches in a knitting machine, we may safely assume that it would be impossible to feed the yarn into a machine without undue strain and breakage were there no relief to be found from the conditions outlined. It has been determined by experiments with fine machines that when needle hook 1 remains in the low position for the length of time required to move the needle cylinder ahead by power the distance between two sinkers, the fabric is full of holes.

In Fig. 2 we may see how the strain upon the yarn *Y* is relieved. In this view we note that as soon as the needle hook 1 is moved ahead by the rotation of the needle cylinder, it is almost immediately raised to remove some of the strain caused by the downward movement of needle hook 2. The yarn *Y* is pulled back over the top of sinker *A*, this movement not only preventing breakage at hook 2 but to a less extent decreasing the smaller strain at the top of sinker *B*. This is the action usually referred to as "yarn robbing."

What have the machine builders done about this problem? Everything possible, for after exhaustive tests it has been found that the time and depth of contacts with the yarn can be reduced by the use of concave grinding at the bottom of the drawing edge of the stitch cams, which causes the needle butts in the concave portion to be traveling down an angle of approximately 50°. The exact angle used is suited to the gage of the machine so as not to impose too much bending strain upon the needle butts and cylinder walls. It has also been found that, by making the casting-off point or bottom dwell of the stitch cams quite narrow and moving the adjacent end cam as close as possible without binding the needles, the needles can be raised quickly and be made to release a little yarn successively as needed.

What have the needle manufacturers done? Their

best, for our needles and sinkers are now finished until they shine like mirrors. Since the sinkers are stamped with dies from flat stock, they have very sharp edges which must be removed. They are polished with great care. It may be hoped that some day a method will be found by which the knitting edges of the sinkers will be rounded. This has already been accomplished on the fronts of needle stems by the use of automatic radius millers.

What can the fixer do? Many things, and he should be a man with a great degree of patience, because it takes time to insure that everything about the machine is right. Before he condemns the yarn, he should consider the following things:

First, the stitch cams should be maintained exactly to specifications with respect to the concave angle and width of bottom dwell.

Second, the filling-in pieces under the stitch cams and the end cams should be free from notches and very closely adjusted in relation to the stitch cams. Just enough clearance should be allowed to permit the needles to move through the races freely. It is impossible to obtain uniform stitches if the bottom race is too wide, because some of the needles will closely follow the contour of the bottom of the stitch cam, while others which move more freely in the slots will be carried down to the filling-in pieces by their momentum, thus drawing more yarn and longer stitches.

Third, no attempt should be made to knit a fine stitch by unduly tensioning the yarn. When the yarn must be placed under unavoidable tension by the needles and sinkers at the stitch-forming point, as has been shown in Figs. 1 and 2, it would certainly be unwise to add any avoidable tension which would be liable to cause a rupture in the stitch formation. When the yarn is under excessive strain, it is not difficult to imagine what happens when knots or slubs enter the needles.

Fourth, it is essential that winder knots be small (either weaver's knot or square knot being used) and that the yarn be properly cleaned and conditioned.

Fifth, the eyelets and yarn guides must be smooth and free from cuts and waste yarn.

Sixth, all take-off eyes and guides should be over the exact centers of supply cones or bobbins. To insure maintenance of these relations, we recommend the bobbin stands and overhead spiders be cross-pinned through their hubs to the uprights. The spiders should be set to a uniform height above the supply stands, giving as much height as can be conveniently allowed, particularly if super-cones are used. This inexpensive undertaking will improve the appearance of the knitting room surprisingly and will eliminate many seconds. If the spiders are first pinned at the drill press, they can then be aligned to the bobbin wires. The fixer can lock the upright rod with the usual setscrews, then drill, ream, and pin through the lower stand hub without removing the machines from the knitting room. This method reduces the surface tension at the supply packages; and when the packages are correctly centered, the tension is more uniform.

Seventh, a few compensators do excellent work where minimum tension is required, since they are not much disturbed by the passage of knots or small bunches in the yarn. Good results are often obtained with the falling rings which are commonly used on full-fashioned knitting machines. These rings are about $\frac{7}{16}$ in. in diameter; and in order to make them endless, they are punched from thin sheet brass and rolled. The ring guides should be about 6 in. long and made from brass or rustless-steel wire $\frac{1}{16}$ in. or thereabouts in diameter. The rings must be threaded with the high side toward the knitting machine in order that the friction which would result if they were threaded in the opposite direction may be avoided. (See Fig. 3.)

Can the problem be solved? Undoubtedly it can. It has been the subject of several patents already granted. Some inventors have attempted to accelerate the motion of the needles in order to draw each needle its full stroke before the following needle engages the yarn. A very interesting patent of this type is described by Mr. Miller in "Principles of Knitting," previously mentioned. The main objection to this method doubtlessly lies in the fact that the jacks and their supporting bed must revolve with the needle cylinder, thus adding a considerable load to the operation of the machine. It may be difficult to find sufficient space in our modern machines for the jack system and the cams required for its operation. A jack system employed on all full-fashioned knitting machines operates alternate sinkers.

Another method has been sought by which the sinkers are rocked to assist in the drawing of the yarn. Not less than six patents have been granted directed to sinkers raising. One of these, the Houseman patent No. 1,539,568, is unique in that the sinkers are rocked above their normal position to avoid yarn robbing. I believe this is a very simple way, but doubt if the stitches would be quite uniform if drawn over an inclined sinker as indicated. This seems to be the trouble which might be encountered with all rocking sinkers.

Possibly it could be solved in the opposite way by dropping the sinkers when they are back around the inside sinker cam and bringing them up when they are driven in to hold the stitches. Fig. 4 shows how this would work. The needles descend on a 45° stitch cam. When any needle, such as 1, reaches the bottom, the following sinker *A* starts to rise and will be entirely up when it has moved the space allowed per needle. That is, sinker *A* goes up while needle 2 goes down, and each stitch can be thus drawn completely before a following stitch is begun. By this method we can avoid drawing the yarn in and then pulling it back over the sinkers, thus reducing the amount of abrasion.

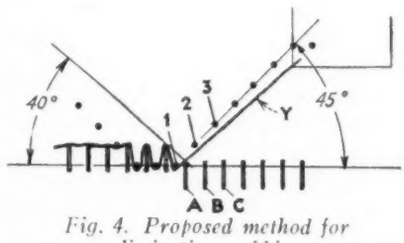


Fig. 4. Proposed method for eliminating robbing

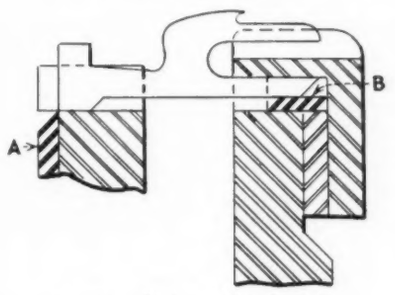


Fig. 5. Sinker with knitting edge always level

In Fig. 5 is shown a sinker which will rise with the knitting edge always level or at right angles to the knitting needle, thus affording a perfectly uniform stitch. The sinkers, being supported by the hardened and ground ring *B*, will be uniform in height; and variation in the depth of the slots will be avoided.

The suggested constructions of Figs. 4 and 5 are offered with the hope that someone with facilities and skill may be able to complete the solution.

Salesmanship . . .

AND WHAT IT DID FOR POWDRELL & ALEXANDER IN 1932

The retailer's window catches the passer-by

A VISIT to the plants of Powdrell & Alexander, Inc., at Danielson, Conn., during the recent textile slump, was a cheering experience. For this concern—spinners, weavers and makers of curtains—has been running with the full complement of 1,806 on the payroll since Jan. 1. In one room alone, light and airy, approximately 500x70 ft., 500 girls have been at work sewing and hemming curtains. August was the second largest month in the history of the company.

The story of why Powdrell & Alexander could keep its employees at work during the worst period the industry has known in modern times is the story of the extended application of the same principles that built the concern from a producer of 1,000 pairs of curtains a day in 1919 to a producer of 40,000 pairs a day in 1932. Sound merchandising has been the dominating factor.

J. W. Powdrell, president, has this to say:

"We really backed into the textile industry. We created the market first and then we took over plants to take care of the market. Further, we have always had the attitude that it meant nothing at all if we sold 10,000 pairs of curtains to a retailer. If the retailer sold 10,000 pairs, however, then that did mean something. When the slump in business came, the easiest thing for us to have done was to sit back and say that the buyers wouldn't buy and that there was nothing that we, as manufacturers, could do about it. If we had adopted such an attitude, our plants would have been shut down and our workers idle, so we decided that it was our job to try and help the retailer sell curtains.

"Retailers were looking for volume business to help carry their overhead and the only reason for small buying orders was that they were not sure of being able to sell. Due to the depression, people were staying at home more. If the idea could be put across to the consumer that a little money spent brightening up the home was well worth while, that as clothes are changed for the sake of variety, curtains should likewise be changed—the price was so low that a new pair could be purchased for little more than the price of having the old ones laundered—then greater volume should result. Fortunately for us, retailers were able to 'sell' the public on curtains through extensive promotion."

What the Retailer Wants

One of the steps taken was the addition to the staff of Milton Weinstein who had had many years of experience in retail merchandising and who thus brought an added understanding of the retailer and his problems to the organization. Both Mr. Powdrell, who spends 90% of his time on the merchandising end of the business, and Mr. Weinstein stress the point that the company never tries to tell a retailer how to run his business. The prime objective is to find out what the retailer wants, gear the organization to give him what he wants, and stand ready to offer ideas and suggestions if the customer desires.

Giving the retailer what he wants, that he in turn may serve the consumer in his territory, means correct styling and good quality at a reasonable price. The retailer knows what he can sell and Powdrell & Alexander make it a point to see that he is supplied with saleable merchandise. Styling is based on what will sell to the consumer and the underlying principle is giv-

ing real value, without which no business can exist for long. Incidentally, Sears, Roebuck Co. employed a dramatic method of illustrating value in its recent catalog by using an insert which showed a sketch of the curtains selling at $1 per pair and included an actual sample swatch of the material. Over 30,000 yd. of material were used to make the swatches alone.

Inventory Turnover 7 to 1

Operating a large plant in such a manner that the needs of individual customers can be met, necessitates precise control of manufacturing operations and inventory. A typical inventory sheet shows over 700 items and yet the book inventory is known every day and an actual physical inventory taken each week. Production schedules are laid out by comparing orders with the amount available in inventory and constant changes keep deliveries up to date and prevent surpluses from accumulating. Despite the large number of items handled, Powdrell & Alexander, through controlled operation, are able to do an annual business of approximately $5,000,000 on an inventory of $700,000.

One of the most interesting features of the set-up is that elements of both centralized and decentralized operation are in evidence. The Danielson plant is well equipped to handle large orders and volume business, but, despite its flexibility, it would have difficulty in competing on delivery with a small concern located near a particular customer. For this reason the company has small curtain-making plants in Los Angeles, Seattle, Kansas City, St. Louis, Chicago, Norwalk, Conn., and Wellfleet, Mass. These units can give quick delivery on small orders and still benefit from the mass production of fabrics carried on at the Danielson plants.

Modern equipment is but another cog in the machinery for turning out good quality merchandise at reasonable prices. All the plants that Powdrell & Alexander took over were modernized and equipment has been kept abreast of new developments. Fabrics are inspected no less than seven times by making use of black-boards wherever possible, such as at the cutting table, and nothing but combed yarns are used in weaving.

History Brief but Spectacular

The history of Powdrell & Alexander is brief in point of years. The firm was organized in 1919 with headquarters in Boston. In the same year a weaving mill of 100 looms, located at Danielson, was purchased (this mill, later increased to 172 looms, has been running night and day ever since).

As the market for ready-made curtains increased other plants were added to take care of the demand, among them being the Danielson Cotton Co., the Danielson and Ballouville units of the Attawaugan Mills and the Danielson plants of the Connecticut Mills Co. Headquarters were moved to Danielson. At present there are six units in and about the town, spinning, weaving and finishing, with the curtain manufacturing concentrated in what was formerly the plant of the Connecticut Mills.

The business was not built at the expense of competitors. There are more firms making curtains today than there were in 1919 when Powdrell & Alexander started in business. The growth has been due to the fact that housewives have been sold on the ease and economy of buying ready-made curtains. At present the market is still ahead of plant production—despite 50,000 spindles and 1,364 looms—, only about 50% of the yarn being made in the company's own units and 70% of the fabrics; the balance being purchased (the company has never tried to renege on a purchase contract despite the falling market of the last three years). About 1,200,000 yd. of fabrics are made into curtains each week by Powdrell & Alexander.

Hung curtains make an effective counter display

The dramatic way to end such a story would be to mention the large profits made during even such a year as 1932. Mr. Powdrell supplies the answer when he says:

"We had an inventory loss to take care of the first six months of the year and we had to figure prices closely to attract the limited purses of consumers. We have not been worried about making a lot of money this year. That will come later. What we ***have*** believed is the most important thing we could do is to keep 1,806 workers at their jobs earning money. Don't you?"

Long Draft in Roving

AND SINGLE VS. DOUBLE ROVING IN SPINNING

By J. L. Truslow
Whitin Machine Works, Whitinsville, Mass.

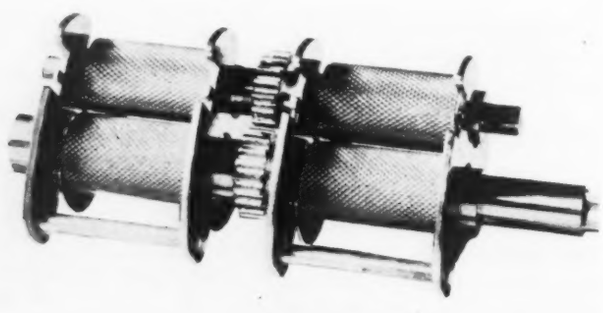
◆ *Rumblings of the approach of long-draft roving have been heard for a number of years. It is perhaps nearer than most of us realize. In the accompanying paper, which Mr. Truslow delivered before the meeting of the Textile Division of the American Society of Mechanical Engineers, at Greenville, S. C., on Oct. 19, recent progress in the development of a satisfactory roving system is outlined. The paper also contains a discussion of factors which govern the choice between single roving and double roving for spinning.*

IN THE early days, there was a very strong and widespread belief that no long-draft system would be practical in a mill spinning very coarse carded yarns. This belief was well founded on fact, for the systems as then built were bad lint-catchers and required an almost prohibitive amount of cleaning when used on coarse work with short cotton. Long-draft spinning still requires a certain amount of extra cleaning, and probably always will. The leading systems have been so greatly improved, however, that the problem can be easily and cheaply solved by the establishment of a proper schedule.

As an example of what can now be done on coarse counts, I should like to give some figures from one of the very large installations. On 7.50s warp for osnaburgs, made from a mixture of strips and low cotton, the front-roll speed is 197 r.p.m., the ring diameter is $2\frac{1}{2}$ in., and the traverse is $7\frac{1}{2}$ in. This yarn is being spun from .51-hank slubber roving with a draft of 14.7, and a girl runs ten sides of 120 spindles each.

Another very large mill spins a range of counts from 8s to 14s, all from .75-hank slubber roving. The drafts used figure from 10.7 to 18.7.

A third and very well-known mill, a pioneer in the use of long-draft spinning, has been making its 13.50s warp for years from .84-hank slubber roving with a draft of 16.1. The ends down frequently count less than 30 per thousand spindles per hour.



Long draft for roving, showing gear drive for top middle roll.

Most of the coarse weaving yarns are made from short or mixed staples of cotton. These types of stock can be handled much better with controlled drafting than with ordinary three-roll drafting. The yarn produced is usually evener and stronger and the work frequently runs better, even though longer drafts are employed.

A few years ago, many coarse yarn mills would refuse to consider the installation of a long draft spinning system because the saving in cents per pound looked so small. Now it is generally realized that, due to the very high production per spinning spindle, the saving per spindle per year on coarse yarns may be higher than with finer counts.

Single vs. Double Roving

When we leave the very coarse counts and enter the range of numbers in the neighborhood of 20s, we begin to find an apparent divergence of opinion as to what constitutes good long-draft spinning practice. We find some mills using double and some, single roving in the creels of the spinning frames. Usually the mills which employ single roving have been able entirely to eliminate one card-room process. Those who spin from double roving ordinarily retain all the processes but make a saving in cost through producing coarser hanks at each process. In this way, they are enabled to increase the production per roving spindle and to eliminate some of the machines used for each process.

The double-roving advocate points out that, for a given standard of preparation, yarn spun from double roving is stronger and evener than similar yarn spun from single roving.

The single-roving enthusiast replies that with perfect roving yarn spun from single roving will be as good as that made from double roving. He also points out that flyer frames are designed to make certain hanks and that if, for instance, a mill takes a roving frame suitable for producing 5.25-hank and starts it up on 3.00-hank, the doffing cost will be increased. On the other hand, if a mill takes an intermediate designed to make 1.65-hank and puts it to work making 2.20-hank, the balance of production is destroyed and somebody is going to be forced to buy additional intermediates. Otherwise, the necessary poundage of the finer hank simply cannot be put through the process.

Most impartial observers feel that there is no quick answer to the question of whether to use single or double roving. It all depends on what the mill has to work with and what it wants to make. Each case must be studied individually.

No mill can afford to sit back and take it for granted that its yarn cannot be spun from single roving. It is well worth while to run a series of experiments.

It is no easy task to eliminate processes and doublings yet still make as good yarn as before. I do not know of a mill which has done it, that did not have a hard battle at the start. In cases, however, where skill and determination have been aided by proper equipment, remarkable successes have been scored. One of the largest bed sheet mills in the country, for example, is getting along nicely with only 12 doublings in its entire organization.

The key to the problem is in the preparation. If a mill is going to cut corners on doublings, everything from the last process of roving back to the bale breakers must be just right. If a mill is using more processes and doublings than its competitors to make a given yarn, it ought to be getting a better yarn and better running work, or it ought to be able to use shorter cotton.

The sheeting mills, which spin counts around 20s, have been large buyers of long-draft spinning. I should like to take, as examples, two very famous mills in this class. They are particularly interesting because one spins from single, and the other, from double roving. Both have equipment which is modern and management of the most progressive sort. Both use the same type of long-draft spinning system.

Mill A makes its warp yarn as follows: slubber, .47-hank; intermediate, 1.20-hank. This roving is creeled single at the spinning frame and spun into 21s with a draft of 17.5.

Mill B, in making its warp, uses the following organization: slubber, .48-hank; intermediate, 1.00-hank; and roving frame, 3.00-hank. This roving is spun into 21s with a draft of 14.0. Double roving is used in the creel.

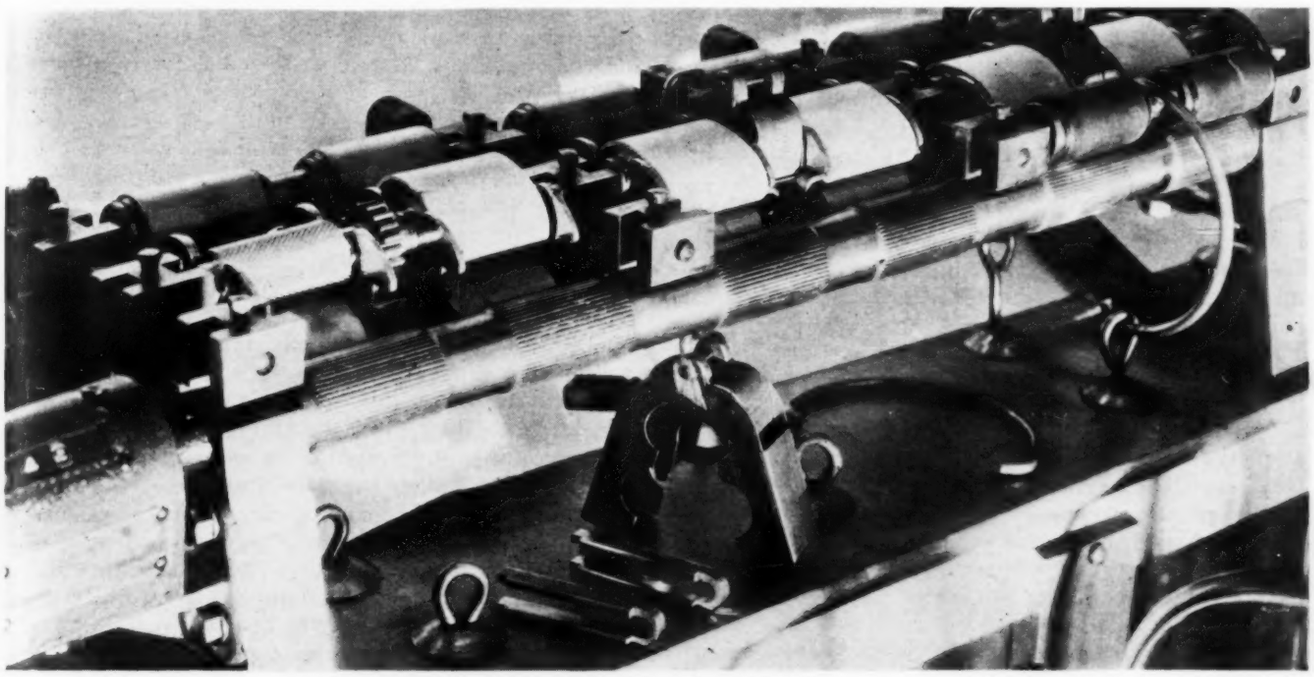
Both mills produce yarn of excellent quality and, in both cases, the work runs well on both the spinning and the weaving. Mill A saves more in labor cost than Mill B but probably uses slightly longer cotton. Both are well satisfied with the advantages they have secured from installing the long-draft spinning system. I suppose that, if we want to be very precise, we should describe Mill A as a long-draft organization and Mill B as a better-drafting organization.

A large proportion of the cotton mills operated by the big tire companies are using long-draft spinning, on yarns in the general range of 13s to 23s.

In the case of these yarns, breaking strength is all important. Most of them are spun from double roving. The following is a typical organization: slubber, .50-hank; intermediate, 1.00-hank; and roving frame, 3.00-hank. This is creeled double and spun into 23s with a draft of 15.3. The same mill makes its 20s from 2.28-hank double roving, with a draft of 17.6, and its 13s from 1.60-hank double with a draft of 16.3.

The tire-cord mills which have installed long draft spinning all report improved breaking strength, in spite of the increased draft.

On yarns in the range of 30s to 40s, there are a great many thousands of spindles of long-draft spinning in operation. Here again, we find that some mills can get satisfactory results with single-roving organizations. Others, after careful experiment, have found that their requirements are better met by the use of double roving.



Section of roving frame equipped for long draft.

One successful mill makes its 30s warp yarn with only two processes of roving. The slubber roving is .60-hank. The intermediates produce 1.60-hank. From this, as single roving, the yarn is spun with a draft of 18.7. Several other mills are running on practically the same organization.

Most mills on these numbers have, so far, preferred to use double roving in the creels of their frames. A typical conservative organization is as follows: slubber, .45-hank; intermediate, 1.20-hank; roving, 3.60-hank. The roving is creeled double and spun into 30s with a draft of 16.7. Such an organization is an example of better drafting rather than of long drafting. It should permit the use of somewhat shorter cotton, if the mill is not interested in raising the present quality of its yarn. To give a specific instance, an eastern mill has found from two years of experimenting that it can make satisfactory yarns from 20s to 30s on ordinary spinning frames with double roving, a draft of 10.0, and full 1-in. cotton. On the long-draft frames it can make 20s to

30s of equal strength and quality, using double roving, a draft of 16, and 15/16-in. cotton.

On fine yarns, a great variety of long-draft organizations are in use. Some mills spin from single, and some from double roving. The length of draft varies with the staple of the cotton and with the quality requirements.

One mill makes its 60s warp yarn from 2.60-hank single roving with a draft of 23.1. The same mill makes its 98s filling from 5.00-hank single roving with a draft of 19.6. This filling goes from the spinning frame direct to the shuttle of the loom. Both of the above counts are made from $1\frac{3}{16}$-in. cotton and the mill operates over 45,000 spindles of long-draft spinning.

Another mill makes a lot of 46s warp from 4.00-hank double roving with a draft of 23.0, using $1\frac{3}{16}$-in. cotton. This mill has been particularly impressed by the smoothness and freedom from hairiness of the long-draft yarn, as compared with that made on ordinary spinning with light wood top middle rolls and a draft of about 16.

Still another mill, with a large installation, makes its 56s warp from 5.50-hank double roving with a draft of 20.4. This yarn is as strong as that formerly made from 9.00-hank double roving with a draft of 12.4. The same mill has spun a lot of 96s and 120s on the long-draft system with good results.

With really long staple, drafts in excess of 30 are being run on a small scale in American mills. In Europe, such drafts are fairly common. The writer visited one mill in Czechoslovakia which was making 60s from 2.00-hank single roving.

Long Draft in Card Room

Now that the long-draft systems for the spinning frame have become established, the question arises as to why something of the same sort cannot be worked out for the roving processes. During the last year, we have been working hard at this problem. We are now leaving the settled regions of machinery practice for pioneer country about which we do not, as yet, claim to know very much.

In the first place, let us see what we stand to gain if we succeed in applying the long-draft systems to roving machinery. Suppose that a mill wants to make 28s warp yarn from 1-in. cotton in the cheapest possible way. There is no need, in this case, to make a beautiful prize yarn, but it must break reasonably high and run well in the looms. First, we shall take the mill's 10x5-in. intermediates and convert them into slubbers equipped with a long-draft system. On these machines will be made 1.50-hank roving from 55-grain drawing-frame sliver with a draft of 9.9. The roving will then be creeled single at the spinning frame and spun into 28s with a draft of 18.7, using a long-draft system on the frame. A mill, which I personally believe to be one of the most progressive in the world, is now running a section of spinning frames on precisely this organization.

At Mill A, mentioned earlier in this paper, a section of frames is running on 21s warp, made on long-draft spinning from 1.20-hank single roving. This roving is made on a long-draft slubber, an ex-intermediate, from 60-grain drawing-frame sliver with a draft of 8.64.

For mills which prefer to spin from double roving, organizations can be worked out which use the long-draft roving frame to good advantage.

The desire of most practical spinners to retain double roving in the creels of their frames is thoroughly justified. In a mill organization, the doublings represent a series of successive inspections of the roving, correcting defects which may have been put in by the preceding machines. It is true that defects may be introduced by the spinning frame as well as by the flyer frames, but in practice, this does not happen so frequently. Accordingly, the doubling in the creel of the spinning frame is particularly valuable. It is the only one which cannot be nullified by a subsequent flyer-frame process. If doublings are to be eliminated, it is better to take them out farther back in the organization, rather than at the spinning frame.

The following organization is based on the theory of doublings which we have just considered: slubber, .70-hank; long-draft roving frame, 3.20-hank. This would involve a draft of 9.15 at the roving frame. The 3.20-hank roving would be put up double in the creel of the long-draft spinning frame and pulled out into 30s, for instance, with a draft of 18.75. This is frankly an imaginary organization and is not in operation.

In trying to work out a long-draft system for roving, our first attempts were along the lines of transplanting the Whitin-Casablancas system from the spinning frame, without changing its construction. We quickly discovered that a number of factors which do not bother us at the spinning frame, are troublesome in the card room.

In the first place, the bulk of cotton passing through the drafting rolls is much greater, particularly at the slubber. This tended to lift our top middle rolls and leather bands out of contact with the bottom rolls, by which they were driven. When a sudden stress was applied, as when the frame was started, some of the top rolls would slip, causing ends of roving to break. We tried to overcome this trouble by using very heavy weighting. This helped the slippage but added to the power required in driving the frame and reduced the life of the bottom leather bands to a matter of weeks.

The credit for overcoming this difficulty belongs to Mr. Casablancas. The thought occurred to him of combining with the apron drafting system an idea which is far from new—positive gear drive between the top and bottom middle rolls. All we had to do was to work out a cover which would make these gears lint-proof. Also, as the top roll had now become a driver, we knurled it to improve its frictional contact with the inside of the top leather band.

Another thing which bothered us was the card-room lint. This is bad enough under standard conditions and tends to increase as the draft is lengthened. We found that it was difficult to keep the top clearers plucked. The front top rolls would pick up loose fibers from the selvages of the drafted ribbon of roving and carry them up to the clearer. Long tufts of waste would form just behind the front top rolls and, if neglected, would go through the rolls, breaking down ends. We discovered that cork-covered rolls would not pick up fibers to anything like the same extent. Using these, in connection with a special new type of clearer, we were able to improve these conditions greatly. We also designed a cradle which guides very efficiently the wide leather bands used on double-boss roving frames and which is much more nearly lint-proof.

At the present time, we feel that we have at least reached the point where we have a workable system. No doubt, many now unforeseen difficulties will arise and further improvements will be made. However, it really begins to look as though long draft in the card room, used in connection with long-draft spinning, may help the mills still further to reduce their costs of production.

Pre-Shrinking

DISCUSSED AT SOUTHERN TEXTILE ASSOCIATION MEETING

Frank K. Petrea, president, S.T.A.

NOT since the adoption of fast colors on cotton has there been added a greater advantage than that of shrinkage complete to all practical purposes, was the opinion expressed by R. W. Arrington, vice-president of the Union Bleachery, Greenville, S. C., at the semi-annual meeting of the Southern Textile Association held in Greenville Oct. 21 in conjunction with the Southern Textile Exposition. Mr. Arrington's address on "Shrinking in General, Sanforizing in Particular," and one by Eugene W. O'Brien, editor of *Southern Power Journal*, Atlanta, were the features of that meeting.

Tracing the fast-color development from the time when a fastness label on a garment "did not mean a great deal" to the present when such a label "usually means that the color is fast," Mr. Arrington stated that shrinking today is going through very much the same process of development. "Much has been learned about the shrinking of cotton goods but vastly more is still to be learned," he said. "So-called shrinking has been practiced on cotton goods for a number of years, but it has never until recently been taken very seriously. It has been more or less a half-hearted, halfway sort of job and did not represent complete shrinkage as we know it today."

Coming to the "Sanforizing in Particular" section of his talk, the speaker outlined briefly the technique of that particular process. He then devoted considerable time to the question of tolerances, pointing out that Cluett, Peabody & Co., developers of the Sanforizing process, lay down a tolerance of three-fourths of one per cent either over-shrunk or under-shrunk.

"We have found a tremendous variation in the shrinkage characteristics of different fabrics and even the same fabric from the same or from different mills will vary from lot to lot," he said. "We are never able, therefore, to set up a standard on any given construction but must check every lot of goods both before and after shrinkage to be sure that the job is properly done.

"We have had degrees of shrinkage on different fabrics varying, I should say, from about 2% up to as high as 15%. It might surprise you to know that a fabric like a blue denim, for instance, usually contains approximately 10% shrinkage. That means almost 4" in 36"."

Mr. Arrington concluded by expressing the opinion that in a very few years consumers will demand fully shrunk garments; and that Sanforizing will eventually become a standard finishing operation such as mercerization is today.

Development of Auxiliary Services

The other speaker, Mr. O'Brien, traced the development of auxiliary engineering aids which, in his opinion, have contributed vitally to the efficiency of textile manufacturing processes. He outlined the progress made in power production, power transmission, heating, control equipment, air conditioning, lighting, etc. He expressed the opinion that there are at present greater possibilities of profit in the study and betterment of auxiliary equipment than in change of the textile process itself.

"May I merely hazard a guess," he said in conclusion, "that it will not be long before the textile process is under even more automatic control than at present, before windows are kept closed, summer and winter, with weather inside the mill tailored to fit, with daylight coming through actinic glass or some other medium of similar advantage, and artificial light from electric units which give carefully regulated intensities and natural color effects? And let me also guess that the engineer will have more and more influence on the design and operation of such plants, as time goes on—he has already extended his sphere of activities from the mere technical to that generally known as 'humanics.' Further and natural extension will intensify his effect upon auxiliary services—both technical and human."

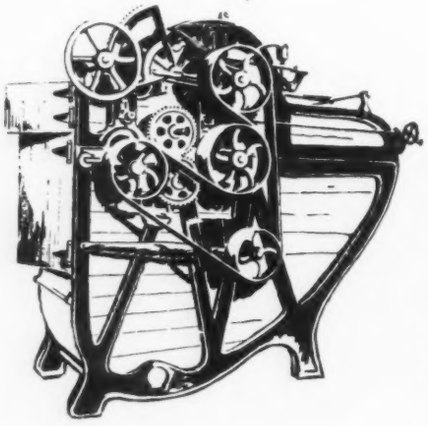
T. M. Marchant, toastmaster

Frank K. Petrea, superintendent of the Swift Mfg. Co., Columbus, Ga., and president of the Southern Textile Association, presided at the morning session at which these addresses were presented. At the annual luncheon, held the same day, T. M. Marchant, president of Victor-Monaghan Co., Greenville, acted as toastmaster; a brilliant inspirational address was presented by Dr. Henry Snyder, president of Wofford Collge, Spartanburg, S. C.

ALERT EYE NECESSARY IN

Finishing Knit Goods

By W. E. Herrick



FINISHING of knit goods, while in many respects similar to the finishing of woven fabrics, requires even greater care to prevent damage to the material being processed. In the following paragraphs the writer will describe informally some of his mill experiences and give also some miscellaneous tips on handling various types of knit goods.

Inspection is doubly important in finishing knit goods. One broken thread left unmended may develop into a badly damaged place in the goods. Therefore the cloth, as it comes from the knitting machine, should be perched over a strong light, so that any break in the thread may be discovered and remedied.

Recently the writer was in a mill which was experiencing a great deal of trouble because of numerous holes in fulled fabrics. We inspected the fulling mills and watched them while they were running. The equipment appeared to be in good condition, but the holes still came —about the size of a quarter. Next we ran some gray goods over the perch, and found that by putting a strain on the cloth, it would pull apart in places that seemed perfect to the naked eye. Further investigation led us to the machine making this fabric. There we found a few very small, fine burrs on the take-up rolls. These burrs partially cut the yarn, which in turn, instantly pulled apart when wet.

Extreme care must be used in wetting fabrics which are to be fulled. There is possibly more trouble from this one operation than from all other mechanical operations. The old-fashioned soaping machine is still the standard equipment, but it must carry a sufficient quantity of well-stirred soap, and it should run much slower than with woven cloth. Also, the fabric should not be squeezed too dry.

It seems to be the nature of a knit fabric to run dry while fulling. It is very absorbent; and additional liquid should be applied frequently to those pieces running an hour or more. If the fabric dries quickly, do not use clear soap, but about 10% soap mixed with 90% lukewarm water.

In scouring worsted or worsted-rayon dress goods, do not, as is sometimes done, add a scouring agent in powder form to the washer. Mild scouring agents, dissolved in water before they are used, should be employed for this type of material, especially in the case of piece-dyes.

Many fabrics today are given what is termed a "shower-proofing." Applied in the manner attempted by many mills, it is ineffectual. To avoid handling of the goods, these mills apply the shower-proofing chemicals in the dye kettle. There is little penetration of the fabric, and the treatment is almost a waste of time. Squeeze rolls should be installed on the dye kettle, and the goods passed through them during the shower-proofing. The effect will be noticeable.

One often encounters cotton knit goods which are stained or shaded. Obvious causes of these defects are dirty dye kettles, trucks, or extractor baskets. A common cause, but often unsuspected, is improper drying. The cloth should be dried slowly and evenly and should not come in contact with any metal. If tubular dryers are used, they should be well insulated.

In the case of heavy-weight napped fabrics, the amount and type of nap which can be produced depend largely upon the degree of felting secured in the fulling process. Before napping, this class of material should be well decated or semi-decated, and then cooled and conditioned, or allowed to set for 24 hr. on a tightly wound roll. A smooth finish, either of the velour or layed type, can be obtained with a fine wire brush lightly touching the cloth. Often the luster can be increased by wet-brushing the fabric or by applying a small amount of a wool finish in the lower box of an "up-and-down" brush. To set the finish and add life and luster, the goods may be steamed and then rolled up in tubular form after passing through a felt-jacketed steam calender.

While stretch in length and breadth should be practically eliminated to obtain a firm fabric, care must be taken to prevent undue tension on the goods because of hard-turning washer rolls. In one mill, with which the writer is familiar, an attempt was made to relieve the tension on the goods by placing an apron over the suds box. The cloth, after coming through the squeeze rolls, was not carried to the front of the machine by the usual carrier roll, but was allowed to drop to the bottom of the box. This expedient proved worthless, and in fact, increased the stretching. The carrier roll was again put into use; and operation of the washer carefully checked. This check disclosed the fact that the carrier roll was running faster than the washer rolls, a fault which was easily corrected.

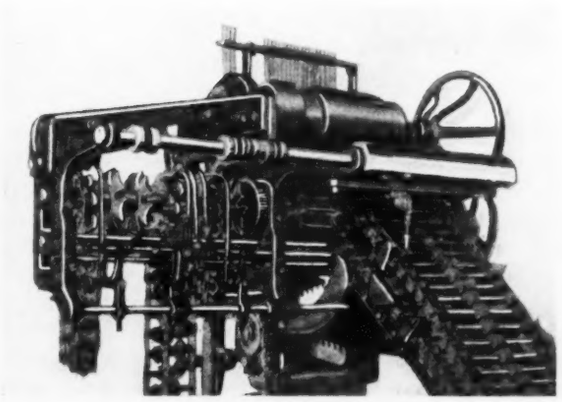
Common sense and an alert eye, as well as skill and judgment, are necessary qualifications of the knit-goods finisher.

Timing Lock Knife

AND REPAIRING WOOL-LOOM VIBRATORS

By Benjamin F. Hayes

IT IS unnecessary, and indeed very undesirable, for loomfixers to cut off the pins on the head-motion timing gears, as I explained on page 76 of the July TEXTILE WORLD. These pins afford a simple and useful method of timing the lock knife; and their elimination, which is rather common practice, indicates an ignorance of head-motion adjustment.



The correct procedure for timing the lock knife is as follows: First, uncouple the head motion, take off the timing gears, and turn the head motion until the lock-knife finger centers with the cam. Turn the pattern-chain gear until the moving vibrators come even with each other. Then replace the timing gears. These can be placed on one at a time after the gear which drives the forward movement of the pattern chain has been put in place.

To determine whether the adjustment is right, turn the head motion by hand until the pattern chain has opened the front points of the vibrators. Just as soon as these points are open, the lock knife must slip in between them. The same is true in both the forward and the backward movement. If the lock knife is not passing between these points immediately after they have opened wide enough for it to clear, we must correct the adjustment by, say, moving one tooth earlier. We now place on the reverse gear, timing it the same as the smaller gear.

Although the lock knife must go between the vibrator points just as soon as it is able to clear, it must not be too prompt or it will be worn out by striking the points and will eventually be the cause of harness skips. On the other hand, if it is late, it will cause harness skips right away.

The lock knife must always be set in between the vibrator points before the cylinders of the head motion come in contact with the vibrator gears, and this fact governs the amount which the cylinders can be set ahead. On box looms the cylinders are in two parts, the smaller to operate the box vibrators and the larger to operate the harness vibrators. The latter parts are adjustable to allow for early and late shedding requirements.

When we consider the driving of the head motion, we come to one of the most ingenious devices ever applied to a loom. This is the eccentric motion—a profound mystery to many a loomfixer. But as I have discussed this mystery at considerable length on previous occasions (TEXTILE WORLD, Jan. 28, 1928, and Jan. 31, 1931), I shall pass over it in this present series of articles reviewing the major problems of the loomfixer's work.

In discussing vibrators, I have an opportunity to show the many readers who have been so kind as to compliment me on my articles that I did not learn what little I know about loomfixing in a day. In fact, at this point I am in the mood for a confession. I had been fixing looms for more than ten years before I found out why all vibrators gaging the same do not give the same results.

In the first place, it is necessary to have the right gage for the right vibrator, as it must be remembered that there are three or four different sizes of vibrator. When the vibrator is placed on the gage, it must be flush both at the center bearing and at the point. Now it might be thought that if all vibrators were made to fit the gage, they would all come to the same position when raised by the pattern chain; but they will not always do so. If the center bearings of all the vibrators are new, they will all rise even with each other; but if some of the bearings have been in operation for a number of years while others are either new or have not been in operation long, those with the new bearings will be raised higher than those with worn bearings.

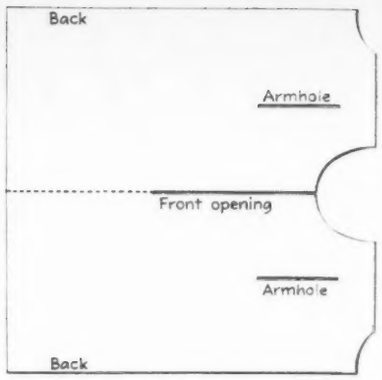
The manner in which I overcame this now seemingly simple difficulty was to gage new vibrators so that the center bearing did not come flush with the gage. This was guesswork, but I became a pretty good guesser. When I finally discovered that the trouble lay in the center bearings, I aimed to get all those bearings as nearly perfect as possible. I would fix up a complete set of the bearings when opportunity offered and insert them in some loom while it was waiting for a warp, putting the replaced set aside for later repair.

The amount of false economy we encounter in some mills is surprising, and we find some of it in the matter of vibrator gears. Quite often the tooth on these gears which is the first to be caught by the top cylinder is the first to wear out. The cause may lie in the fixer trusting too much to his gage and not taking proper note of a center bearing which is worn flat. Many times when a tooth is lost, the mill will have a little dental work done on it. Sometimes this is worth while; but if the gear is imperfect in the center bearing, it is a waste of money. Sometimes the man doing the dental work on the vibrator gears will be told to make the new tooth a hard one so that it will not wear out any more, with the result that the cylinder, which is worth thirty times as much as the gear, is ruined by contact with it.

A Mill Test

SHOWS YARN COSTS IN CIRCULAR KNITTING

By S. M. Peterson



Body patterns made in double width effect worth-while savings

A PRACTICAL mill test is the most accurate method of determining yarn costs in circular knitting mills. The following test on 100 doz. infants' wrappers illustrates the procedure employed by the writer. The garments were knit on twelve-cut, latch-needle machines.

Body patterns were made in double width, as shown in the accompanying sketch. It will be noted that the front openings and necks of the two patterns meet in the center thus enabling the operator to cut out the necks of the two patterns at one time. Use of wide rolls which accommodate double patterns permits worth-while savings. This is due to the fact that large rolls can be handled as quickly as narrow ones in the turning, bleaching, and drying operations, and will give twice as much material for use on the cutting table.

The sizes and assortment of garments made during the test were as follows:

Sizes	1	2	3	4	5	6	
Dozens cut	5	10	20	25	20	20	= 100 doz.
Rises	..	1	2	3	4	5	
Total rises		10	40	75	80	80	= 305

305 ÷ 100 = 3.05; average size 4.05.

The combination of yarn used comprised one end of 45s white worsted and one end of 50s C.P. in each feed, making what is called a full-faced worsted fabric. Theoretical percentages by weight of the two yarns used in this combination are shown by the following calculations:

1 end of worsted is equal to 30s cotton. 120 yd.		= 33.3 grains
1 end of 50s C.P.		= 20.0 grains
Total weight of yarn in each feed		= 53.3 grains
45s Worsted	33.3 grains ÷ 53.3	= 62.5%
50s C. P.	20.0 grains ÷ 53.3	= 37.5%

To find the actual amount of yarn used, we opened a case of 50s C.P., removed papers from the cones, weighted the cones of yarn alone, then deducted the weight of an equal number of empty cones. We then counted out enough empty cones on which to wind the whole case of yarn, wound the yarn, weighed the wound yarn, and deducted the weight of the empty cones on which we had wound the yarn. This gave the weight of yarn to be used, which was also the actual weight of yarn received minus the winders' waste and the fly waste made during the winding of the yarn. Winders' waste for the case was 3.5 oz.; fly waste was calculated to be 12 oz., or a total waste of 15.5 oz. We obtained a net weight of 309.5 lb. received, compared with an invoiced net weight of 329.28 lb., a loss of 6.007%. The net weight of the wound yarn was 296.25 lb., giving a loss of 10.031% from invoiced to wound yarn. A check on the worsted yarn showed a loss of approximately 1% from invoiced to net weight.

Actual weights of yarn employed in making the 100 doz. garments were as follows: 45s worsted, 79.5 lb.; 50s C.P., 132.5 lb. These actual weights were converted into the weights as invoiced, and the percentage of each was calculated.

45s Worsted 79.5 ÷ 99	= 80.303 lb.	= 35.29%	@ $1.10 per lb. = 0.3882
50s C. P.... 132.5 ÷ 89.969	= 147.28 lb.	= 64.71%	@ $0.60 per lb. = 0.3883
Total	227.583 lb.	= 100.00%	Total cost per lb. 0.7765

Yarn losses and credits which must be taken into consideration in knitting, bleaching, and cutting are as follows:

Invoiced weight of yarn used	227.583 lb.	
Weight of cloth knit	212.000 lb.	
Loss from yarn to cloth	15.583 lb.	= 6.58%
Weight of bleached cloth	201.000 lb.	
Loss from knit to bleached cloth	11.000 lb.	= 5.19%
Loss from yarn to bleached cloth	26.583 lb.	= 11.68%
Weight of cut dozens	148.000 lb.	
Cutters' waste	19.000 lb.	= 11.38%
Bleached cloth left over	39.000 lb.	
Original yarn weight of cloth left over	44.160 lb.	
Invoiced yarn used for 100 doz.	183.423 lb.	
Loss from yarn to cut doz.	35.423 lb.	= 19.312%
Yarn used for 1 doz.	1.834 lb.	
Weight of 1 doz.	1.480 lb.	

It is evident from these figures that in calculating the cost of these garments, the yarn weight per dozen is 1.834 lb. Table I shows a form suitable for recording the results of the test. To indicate the manner in which various tests can be recorded on one form, there are given also the results obtained on two other styles of garments.

Table I.
Form for recording results of yarn-cost tests

Style No.	Per cent loss from invoiced yarn to knit cloth	Per cent loss from knit cloth to bleached cloth	Per cent loss from invoiced yarn to bleached cloth	Per cent Cutters' waste	Per cent loss from invoiced yarn to cut dozens	Average weight of invoiced yarn used	Average weight of cut dozen	Loss per dozen from invoiced yarn to cut dozen	Cutters' waste expressed in lb.	Average size on which tests were made.
Infants W. Style 9...	6.85	5.2	11.68	11.38	19.312	1.83423	1.48	.35423	.19	4.05
Infants W. Style 10..	5.	5.19	10.19	11.38	18.232	1.81	1.48	.33	.19	4.05
Infants W. Style 11..	6.	4.28	10.	10.257	19.54	1.74	1.40	.34	.16	4.05

Rayon-Woolen Blends

SUCCESSFUL COMBINATIONS DEPEND ON CAREFUL SELECTION OF RAYON WASTES

By Henry R. Woodward

◆ *Many heavy losses, states Mr. Woodward, have resulted from the improper selection of rayon wastes for rayon-woolen blends, and profits have been eliminated by the use of a high-cost product when a less expensive one would have served the purpose.*

CAREFUL selection of the varied rayon wastes for the many types of woolen fabrics is essential. Where price is the only consideration, where the rayon must compete against such cotton wastes as soiled card, card strips, and comber, and where the stock is dyed, the natural selection is what is known as "garnetted bloomers," which is the "old cloth" of the rayon trade. The next step upward in price, and a very slight one, is "pink seamers garnetted" or a blend of a little cutters and a lot of seamers, the cutters adding staple to the product.

Where the rayon still has to be dyed, but freedom from cotton threads is a requirement, together with better spinning power, an "all cutters pink garnett" might be chosen. If the shades were fairly dark and more staple and luster were needed, or not harmful, a colored rayon-thread garnett might be had at the same price as, or even at a lower price than, the "pink all cutters."

Where spin is not so important but the yarn is to be left white, a rayon noil would be the proper selection; while if, under the same conditions, additional spinning power were wanted, a miscellaneous white rayon-thread garnett would be selected.

Should the requirement be for union piece dye, solid color, the first essential would be freedom from acetate fibers, which would not color with the rayon. Here a guaranteed all-viscose white garnett or carded rayon made either from producers threads or open waste would be selected. "All pink cutters" is sometimes used for this; but there is a chance involved that acetate may be present, unless the supplier can absolutely guarantee that the source of the cutters is a plant never using acetate.

Should a staple longer than garnetted be required, one might select carded rayon. Should a shortage in noils develop, it is sometimes possible to use cut stock of 1- or 2-in. staple length.

If a silvertone or sprinkled effect in color is desired, freedom from specks, from whatever cause, is essential. Some manufacturers prefer a cut rayon top, where the nibs are at least largely combed out into the noil. Others are able to get results with special garnetts, of coarser filament preferably and of shorter staple, run doubly slow on the garnetts.

Satisfactory results from rayon-woolen blends depend on selection of suitable rayon waste

Clearest Product Can Be Nibbed

In this connection it should be stated that the clearest and best products made can easily be nibbed up by any of the following causes: oiling the rayon with the wool, too much oil, insufficiently close setting of the card, card clothing in poor or ragged condition, too coarse a card clothing, lack of stripping, uneven setting side to side of the workers, breast garnett wire in poor condition, selection of too fine a filament for the purpose, and too much drawing of the roping in spinning. The latter may not make the nibs, but it will accentuate them.

Where an extra kind, soft handle is required, together with good spinning properties and some luster, perhaps whiteness, a white fine-filament garnett might be used. For coloring, there is at times in the market a fine-filament colored garnett at a lower price. There is also available for coloring, the unbleached type, which is generally a rather fine filament. Where concealment of luster is wanted, there are the so-called delustered garnets and carded stocks, with unbleached and semi-bleached showing an intermediate stage of luster.

From the foregoing, one will readily appreciate the importance to a mill using rayon waste of the proper use and selection of stock. Many heavy losses have been caused by poor selection, which results in trouble, imperfections, and damage claims. Many good profits have failed to materialize for lack of sales due to this same poor selection. Profits have also been sacrificed in the use of a higher-cost product when a less expensive one would have served the purpose.

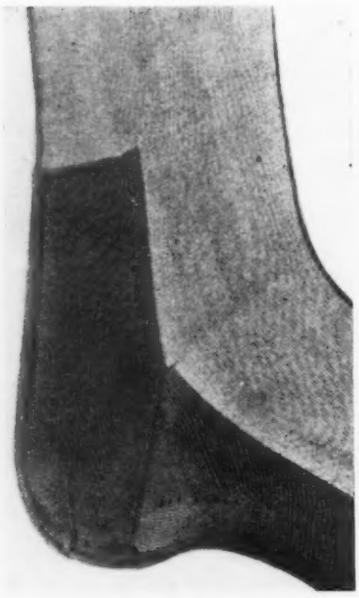
[This article supplements "Rayon-Woolen Blends," by Mr. Woodward, TEXTILE WORLD, Sept., 1932, page 61.]

ELIMINATING

Shade Variation

IN SILK HOSIERY

◆ *Probably the most common defect in silk full-fashioned hosiery is the so-called two-tone effect or difference in shade between leg and foot of the stocking. A special report made recently by the silk committee of the National Association of Hosiery and Underwear Manufacturers lists the principal causes for this defect and recommends steps which should be taken to eliminate or reduce it. We present below a concise abstract of the report, which in its broader treatment agrees closely with the findings which have appeared from time to time in our Questions & Answers department as to cause and prevention of shade variations in specific instances.*



ONE of the principal causes for two-tone effects in silk hosiery is a difference in the nature or color of the silk. Silks may be of soft nature or hard nature with varying degrees between. In general, the soft-natured silk will come out lighter in color, and the hard-natured darker in color if both are dyed in the same bath and under the same conditions. The color of silk varies due to a difference of race or breed of the worm, or to oxidation of the thread. This will cause two-tone effect, as the dyestuff will take differently on raw silks of different colors.

To avoid two-tone effect due to difference in nature and color of the silk, use silk of the same nature and color in leg and foot. This necessitates keeping lots of silk of the same nature separate in throwing and knitting, or mixing the silk within the lot thoroughly before throwing to secure the best average uniformity possible. In addition, it is possible to vary the soaking and boil-off operations with variations in nature between lots.

Two lots of silk soaked by different methods, or thrown in different plants, even when soaked with the same materials, will dye somewhat differently. To avoid trouble from this source never mix in the same stocking silk thrown in different plants, soaked by different methods, tinted with different colors, backwound through different solutions, or of different grades.

The color of the silk is changed by oxidation of the thread itself or by oxidation of the soaking oils used in the throwing operation or the backwinding operation. To avoid two-tone effect due to oxidation, foot the stockings shortly after legging, as raw silk exposed to the air will oxidize; and avoid storing stockings in the gray in a light room or in a room subject to extreme changes in temperature or humidity.

A difference between the number of courses in the leg and in the foot gives the appearance of, but is not a true, two-tone effect. In general it is due to carelessness, and in excess amounts is the sign of poor supervision. It results from the leg or foot being knit either too tight or too loose. This may be caused by silk too dry, which causes looseness; silk too wet, which causes tightness; improper adjustment of heads; improper adjustment of felts or tensions; improper adjustment of take-up weights; improper adjustment of tension on coners; or improper adjustment of slackers. In general, it is advisable to put up a new set of silk on both the leggers and footers at one time, instead of replacing individual cones as they run out.

Effect of Twist Variation

Pronounced differences in twist, which also give shade variations, can be readily discovered by counting the twist on each side of the two-tone effect. Generally, a knot can be found where the two colors come together. If you have your throwing done for you, call the matter to your throwster's attention, after making sure it is not due to carelessness on your operator's part in tying the different twists together. If you do your own throwing, check: on 5-B machines for spindle not stopping when the end is broken and the roller not feeding; end wrapped around guides; your operator holding the thread too long after tying knot and starting spindle; and end not being wrapped around the feed roller a sufficient number of times. On the second-time spinners check for sticking of take-up bobbin; and uneven running of flyers on spindles. On high-twist yarn be sure that your cone winders take off sufficient waste where an end is broken down.

A difference in size of thread gives the appearance of, but is not, two-tone effect. It may be due to variation in size of raw silk. If this is found to be the cause, check up on your silk testing, and be sure two lots of different average size have not been mixed in throwing and knitting. Likewise, it may be due to mixed thread; that is, for example, three-thread mixed with four-thread. This can happen in throwing during the 5-B operation, and is due to carelessness; or during coning, backwinding, or knitting, and is caused by the operator tying different threads together. A proper choice of tints should eliminate this sort of trouble entirely.

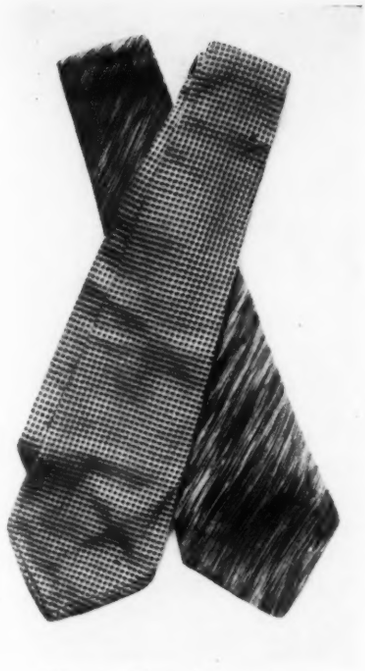


Fig. 3. Two interesting synthetic-fiber neckties

Rayon Neckties

BETTER WEAVING WOULD FURTHER INCREASE DEMAND

By John Picone

RAYON neckwears have progressed rapidly year after year, and in recent months they have appreciably extended their inroads into fields once exclusive strongholds of silk. There are still vast opportunities for increasing the demand for rayon ties by improving the methods of producing the fabric and eliminating the ragged appearance which causes numerous seconds and cut-outs.

There is still room for improvement in the sizing of the warp, as there seems to be too much trouble from this source. The writer occasionally sees warps in such a bad state that they cannot be run. The result is that, after they have been in the looms for a few days, causing bad seconds and loss of time, they are cut out and resized. But after this has once been done, the warp and fabric are never as originally intended.

Another fault we have in this field is the crowding of too many picks—and also overloading with dead picks. Rayons will not stand this, and the sooner we stop crowding in picks the better the cloth will be, and the better the production also.

The writer was recently called to a mill which was having considerable difficulty in weaving this type of material. Warp after warp was being cut out without benefit. After looking over the fabric in question, the writer had the weaving department cut the reed down four dents per inch and take off eight picks. After this was done, at least a 65% improvement was noted. The writer believes, however, that there are still too many picks in this particular fabric.

Another fault often encountered is that of an improperly timed shed or one which bears down too heavily on the race plate of the loom. This is a fault we find in 90% of our jacquard mills today. Why they fail to regulate the harness properly it is difficult to say, unless it can be laid to a lazy loomfixer or a neglectful weave-room foreman. Harnesses so timed or adjusted cause many defects, such as floats, chafed ends, pick-outs, and harness skips, resulting in inferior fabrics and seconds or damages.

In weaving neckwear on shaft looms, there are a number of different effects that can be obtained by employing two weaves of different interlacing properties to form either checks or stripes. These can be extended somewhat to include spotted and figured effects.

One of the most common, but still popular, constructions is that employing eight harnesses, 4/50-reed, 100-denier rayon in both warp and filling, and 80 picks per inch. Constructions of this type are well balanced and run very well in the weaving.

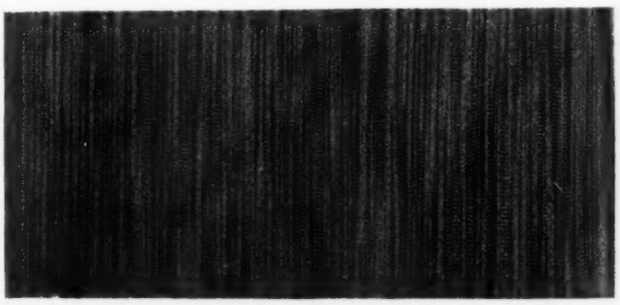


Fig. 2. Silk and acetate random-dye material

Another rayon tie that has been well received is the 150-denier rayon warp filled with 100-denier rayon, both right and left twists, and using either 60 or 64 picks. Fig. 1 shows the weave for this tie on nine shafts.

Imitation mogadors also are well received; but care should be taken to see that the colors are well blended —otherwise the effect is killed and the tie meets no demand.

Fig. 2 is an exceptionally attractive fabric with acetate warp and silk filling, which has met with favor. It employs three-thread silk filling both left and right twist. It is made with six shafts, three ends per dent in 45 reed, and 84 picks. The warp is acetate, random dyed.

Fig. 3 shows a tie made of similar fabric but dyed in different shades. It also shows a novelty tie consisting of a white cuprammonium mesh over a plain red fabric of cuprammonium, both being knitted.

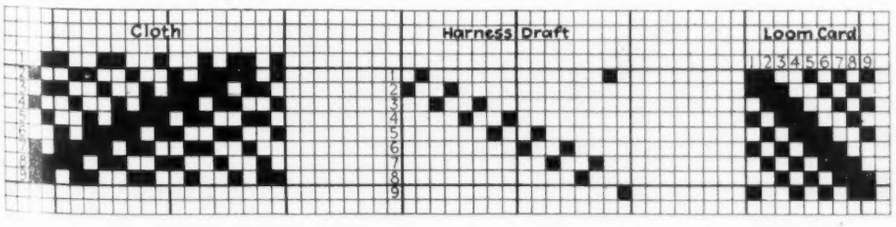


Fig. 1. Weave and drafts for a popular tie fabric

KNOWLEDGE AND TACT INDISPENSABLE TO

Silk Examiner

By J. G. Halsey

THE examining department of the well-organized silk mill is the proving ground for all concerned. It is here that the results of faulty throwing are seen, where soiled filling shows up in all its disagreeable traits and where very often the responsibility for bad cloth is decided between the throwing mill and the weaving mill. Here the questions raised by the weaving department, as to whether this defect or that defect will show up after the piece is finished, must be settled. It is here that weavers and fixers and foremen must be called and shown bad merchandise and the idea instilled in them of what must be expected and what must be done. Here is determined whether warp streaks are section marks, chafe marks or uneven silk. It is, perhaps, the most important part of the whole mill.

Not Fault Finders

The idea should prevail throughout the plant that the examiners are not fault finders, but constructive criticizers whose main object is to help the weaving and other departments overcome their problems as rapidly as possible by pointing out to them the results of poor work on the parts of their operatives. The examining foreman should be chosen, not only for his knowledge of cloth, but because he is able to get along with people. Likewise he should have a thorough understanding of what the other foremen are forced to accomplish.

It has been common practice in numerous mills for the examining foreman, on having an imperfect piece brought to his attention, to call in the weaver and reprimand him. This should never be allowed. It should be the duty of the foreman in charge of the offending operative to hand out censure and blame if he thinks it to be the operative's fault. If the examining foreman feels that the matter has been improperly handled, he should call the attention of the superintendent to the piece and recite to him the incidents of what happened. The superintendent should then get all the principals of the case together, hear all sides, and place the blame where it belongs. It frequently happens that the examining department will find a piece to be bad because of some imperfection that is not easy to see or definitely to determine. In the case of barre the weaving foreman might honestly argue that the cause for the uneven appearance is due to the tint, or the unevenness of the filling, whereas the examining foreman is sure that it is loom barre. The superintendent should be available at all times to settle such disputes.

The feeling should prevail that the examining department knows what it is doing, and no one can build up this idea as well as the superintendent himself. It is good psychology to have as examiners the best weavers the weaving department has ever turned out. The position of examiner should be the ultimate to which a girl weaver can work and she should be paid accordingly. The weavers have little objection to the classification of their work by an examiner of this caliber; on the other hand, they may feel some resentment against a critical examiner who knows less about weaving than they do.

Inspection at the Loom

A number of mills have adopted the three-shift system of operation. This means that a loom will turn out a piece every 24 hr. The multiple loom system is also in vogue, and weavers who several years ago were accustomed to handle three or four looms now have six or eight plain box looms to keep going and as many as ten or twelve automatics. This necessarily puts a greater burden on the weaving foreman; therefore it is a good plan to carry examining further than the examining department itself, and to place an examiner on the looms to roll off cloth. The mere fact that there is somebody examining cloth has the effect of keeping the weavers on their toes, even though only a portion of their work is seen each shift.

Suppose that we have a mill of 400 looms running three shifts. There should be one examiner rolling off cloth on each shift. We know that it is impossible for one person to roll off all the cloth on this number of looms and do a good job of it. To each one of these examiners should be given a book in which to write down the defects that he notices. He should start at one end of the mill and work in a certain direction and, when he comes to the end of his shift, he should mark in his book, after his observations, the numbers of the looms that

Penalties imposed for fabric defects

Broken pick	5
Crack	33
End out—long	3
End out—short	1
Finger mark—bad	3
Finger mark—slight	1
Float—bad	5
Float—small in center	3
Float—small near edge	1
Hang shot—bad	3
Hang shot—small	1
Heavy set	5
Knock-off—bad	3
Knock-off—small	1
Lashed end—bad	3
Lashed end—small	1
Loopy pick—bad	5
Loopy pick—slight	3
Mispick	5
Reed mark—center	40
Reed mark—edge	10
Rip mark—perfectly set	1
Rip mark—bad	5
Shed mark—bad	5
Shed mark—slight	1
Shire	5
Smash mark	5
Sticker	3
Sticker—slight	1
Wrong draw—bad	40
Wrong draw—slight	10

he has been able to get over. His book should be given to his foreman to check up on the observations that have been made and to notify the next shift the number of looms that have been gone over. The examiner of the following shift should start where the preceding examiner has left off and continue with the rest of the looms. At the end of his shift he should pass on to his foreman and the oncoming shift the same information that he has received from the previous shift. In this way all looms are taken care of in rotation. The foreman of each shift should look over the examiner's book and take the proper steps to correct any conditions that he feels should be rectified. These books should then go to the superintendent, who should look them over as one of his first duties in the morning. The superintendent should also place his initials over the observations for the psychological effect it has on both his foreman and his examiner.

In a mill working on the three-shift system on a quality shot with 60 picks, or thereabouts, the pieces come off so rapidly that it is necessary for everyone to be alert or a great amount of bad cloth may result. If the weaver takes a cut off at 3.30 p.m. on Shift 2, and the examining department works a 9-hr. day shift, this piece will not be examined until the next day. By this time another cut is ready to come off, and a third one may be started. If the first of these cuts has a barre in it which the loom examiner did not notice, and if this first cut is put through the examining department without delay, more spoiled cuts will follow. Therefore the wise superintendent will make some arrangement so that his examining department will know what pieces have come off the looms first, and these will be given first attention. The examiner will notice the barre, see that it has not been taken care of on the loom, and note that it is still running at the end of the cut. This condition calls for quick action to stop the loom before any more cloth is ruined. The examiner should have a card across the top of which, in large capitals, is printed, "FILLING DEPARTMENT—STOP THIS LOOM."

On this card should be stated also the reasons why the loom should be stopped and the time at which the card is sent to the filling department. The filling department should indicate on the card the time that it stopped the loom by taking away the filling; the weaving department should mark down the time at which the card was received, what was wrong with the loom, and at what time it was again started. When the loom is again running, the card should be sent to the superintendent so that he may initial it and take whatever action he deems wise. The card should then be returned to the examining department to be filed for future reference in case the same loom again gets out of order.

Defects Penalized

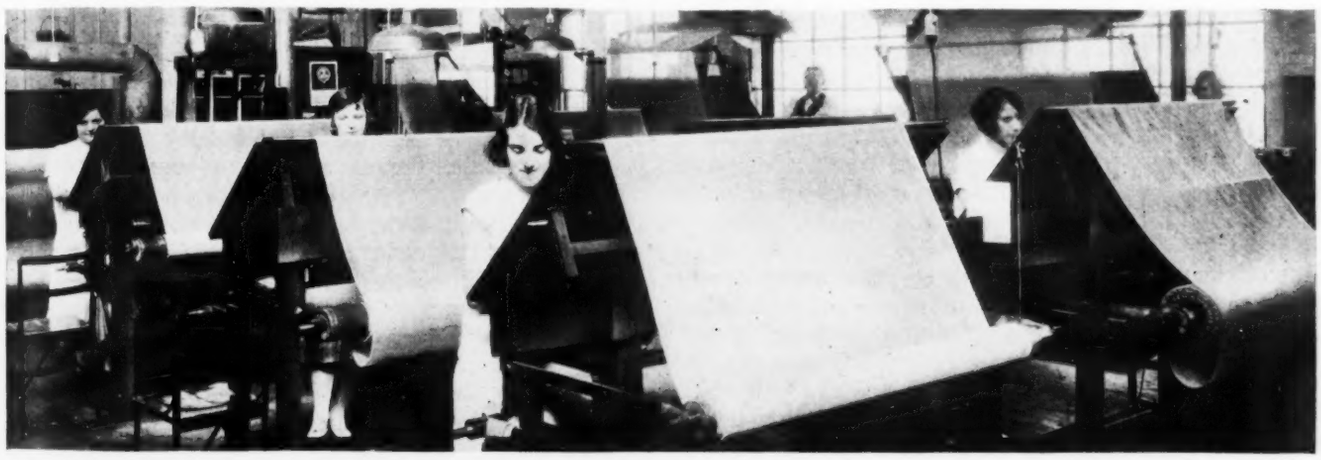
The average weaver has little knowledge of the value of certain imperfections in causing a piece to be classified as a second. He has been told that all imperfections are bad, and he is either reprimanded at the loom or called to the examining department and shown his bad work. In case his work is passable, he hears nothing further concerning the piece. If a way can be worked out to keep in front of the weaver just what he is doing and the penalty imposed for each defect, the effect it will have on the weaver will be well worth the cost necessary to bring these facts to him. The table on previous page shows the numerical penalty suggested for various imperfections that may occur.

Pieces should be graded as follows: *A* a piece with a penalty of 15 or less; *B* a piece with a penalty of 25 or less; *C* a piece with a penalty of 50 or less; and *X* an imperfect or a second with a penalty greater than 50.

All pieces that are classified as *A* or *B* should be paid the full rate. Four pieces graded as *C* should be allowed per 2-week period at the full rate, but pieces in excess of four graded as *C* should carry a 10% deduction automatically. All pieces classified as *X* should carry a 10% deduction.

A small form should be made out in the examining department showing the exact numerical rating given each piece; and this form should be returned to the loom so that the weaver may be accurately informed as to the character of his work. There should also be posted on the main bulletin a chart which is kept up to date, and on which every weaver's name is shown and after it, under the proper date, the number of *A*, *B*, *C*, and *X* cuts that he has turned in. The effect of having the character of one's work posted so that all may see is a decidedly advantageous one.

The wise superintendent will carry this one step further. He will set up a weaver's quality record and will post on each weaver's sheet the gradings of every cut woven. It should be pointed out that the quality, and not the length, of service is the all-important factor which will be used to decide who are to be retained in times when curtailment is the order of the day. This, of course, will be determined from the weaver's record.



The chief function of the examiner is to aid the productive departments in overcoming their problems.

Crinkled Prints

IN THE MAKING FOR SPRING PRESENT MILL PROBLEMS

Onondaga Silk Co.

CRINKLE prints are the big question-mark of the spring 1933 season in broadsilks. Seldom in recent years has the fabric industry shown such interest as is now manifest regarding plans for the new offerings. A study of the broadsilk outlook for 1933 brings several major thoughts into the foreground. First, it is probable that rough-surface fabrics, now enjoying such a remarkable vogue, will outlive the present season. The extraordinary success of crinkled goods during fall is viewed by style authorities as indicating a definite consumer turn toward novelties and this trend must be guided if it is to be capitalized. Second, the costly educational promotion conducted by manufacturers of late in building demand for crinkled goods would be largely wasted if some way were not found to carry the new consumer call for crinkled effects into the new season.

The issue, in brief, is: Can these creped fabrics, so popular in plain colors for fall, be made to take print designs satisfactorily enough to permit of a crinkled print season? Spring is by tradition the print period, and if the manufacturers can solve the mechanical problems involved, there is excellent chance that the high-volume business in plain crinkles this fall may be duplicated in printed crinkles next spring.

Manufacturers are making strenuous efforts to develop a satisfactory creped print, and trade leaders believe that these efforts are soon to be successful. Some manufacturers, indeed, are so confident of being able to offer a wide range of creped prints, that they are marketing for new designs adaptable to the crinkled goods and also for new and distinctive constructions.

For satisfactory printing it seems possible that the fabrics could be printed before being creped. Following a scour and tentering after weaving, there should be a minimum crimp to the fabric which would not hinder a clear printed impression. After creping the printed figure would not be quite the same as before due to the yarn take-up producing the crinkle. Allowance for this difference or selection of patterns which render it of little consequence are two of the problems associated with the work.

Warp printing could be utilized where the crepe weave was designed to leave the warp on the surface. Multicolor effects in stripes and checks could be attained by use of the simpler forms of warp printing, by use of dyed yarns in construction of the fabric or by use of two fibers of different dyeing characteristics to give two colors out of a single dyebath. In the last two forms of construction the pattern would run symmetrically with the crepe because it would follow certain yarn groups and the crinkle would not introduce unexpected distortions.

Still another possibility for the introduction of multicolor effects in the rough crepes, is the use of random dyed yarns. This involves no problem of pattern and probably could be handled to produce effects quite in keeping with the spirit of the rough crinkled surface.

The vogue for printed or other crinkles in spring, would be significant both to the goods industry and to raw silk market in increasing the amount of silk consumed. Broadsilk manufacturers assert the industry has sold a greater quantity of fabrics in raw silk poundage during early fall than ever before in a similar period; the crinkle effect necessitates a consumption of 25 to 35% more silk per yard than the flat-surface fabric because of the take-up and the heavy weight of the fabrics in vogue.

At the end of September it was estimated that crinkled fabrics represented 40% of the total broadsilk output; of this about 75% was being bought by the cutting-up trade. In color preference black dominated, with 70%, and other popular shades included red, orange, a bright green with yellow cast, blues, wines and browns. Approximately 10% of the current crinkled fabrics are made of synthetic yarn, cellulose acetate being the favorite. Weavers had certain preliminary difficulties in getting the desired crinkle effect with acetate yarn, but these have been overcome and acetate yarn crepes now enjoy a good and growing demand.

When the crepe vogue started, the elastic type of rough crepe was offered but proved a poor seller. It was unsatisfactory in many respects, the chief fault being a tendency toward elongation. Improvement in weaving technique eliminated most of these difficulties. There are already six or seven distinctly different types of crinkles.

Manufacturers are exercising unusual vigilance in keeping their spring plans secret. Trends regarding the 1933 crepe lines are being bruited, however; stripes will be featured and there will be considerable emphasis on plaid and check effects. Certain new derivations of the much-exploited waffle pattern also can be looked for.

A counter-attack on crinkles is reported from Paris where recent showings included a number of smooth-surface fabrics. However, the New York market does not view these goods as competitive with crepes; it is expected that the smooth fabrics will be used chiefly in velvet apparel manufacture, since crinkled goods and velvets do not go satisfactorily together.

The rough-surface vogue is strongly entrenched and may even carry through to the 1933 fall season, stylists contend. Even as this article is written, one leading broadsilk house contracted with a dress firm for its entire output of one number of crinkled heavy satin.

Mothproofing Compounds

SHOULD FIND WIDER USE IN TEXTILE PROCESSING

DAMAGE in this country due to the clothes moth and other insects is estimated to amount to $100,000,000 annually. Yet only a small percentage of wool goods and other materials subject to the depredations of these insects is treated to prevent this loss. Of the various measures which can be taken to combat the ravages of the clothes moth, impregnation of the material with suitable protective agents is of particular interest to the textile manufacturer. Discussion in this article is limited to compounds used in that manner.

With minor differences, most authorities agree on the properties necessary in a mothproofing compound. It is believed the following list gives all major requisites:

1. It must repel clothes moths or render the fibers proof against moth grubs.
2. It must be permanent in its effect.
3. It must not injure the physical properties of the fiber.
4. It must not affect the color of white fibers or the shade or degree of fastness of any dyestuffs already in the fiber.
5. It must be odorless.
6. It must not dust off.
7. It must be non-poisonous to human beings and must not have any irritating action on the skin.
8. It must be capable of simple and uniform application.
9. It must be available commercially at a reasonable cost.

It will be noted that those requirements rule out at once volatile compounds, which in the main, are not odorless, and which are not permanent in their action. Likewise, they exclude many chemicals with low boiling points, those which sublime at low temperatures, and those which do not penetrate into the goods but are merely deposited on the surface. There are a number of substances, such as paraphenylenediamine, which afford good protection against the clothes moth, but lack one or another of the above-mentioned properties.

While hundreds of patents covering mothproofing materials and methods have been taken out, it is only within recent years that any effective progress has been made. Many of the substances proposed have never been placed on the market, and others have failed to justify the claims made for them by their manufacturers. As late as May, 1931, Roark intimated that the large number of diverse materials proposed for proofing wool against injurious insects is an indication that none is completely satisfactory. On the other hand, it is certain that some of the newer compounds have a real value and are well worth investigation by the textile manufacturer.

Without arguing relative efficiency, it is our purpose to indicate briefly a few types of compounds which are said to prevent, or at least lessen, the damage from clothes moths to which untreated fibers are liable. Lack of mention of any compound does not imply necessarily that it is not suitable for use as a protective agent.

Among the organic compounds which have been reported as effective (when applied in sufficient quantities) are included quinine oleate, quinine sulphate, quinidine and several of its salts and derivatives, quinicine hydrochloride, quinicine oleate, cupreine and several of its salts and other derivatives, carbazole, cyclohexanone, thiourea, allylthiourea, phenylthiourea, rotenone, and some synthetic dyestuffs—particularly Martius yellow. Inorganic chemicals which have been found effective include sodium fluoride, aluminum fluosilicate, and sodium silicofluoride. Under the trade name "Eulans" are grouped a number of compounds which are reported also to be effective mothproofing agents. The Eulans are protected by many patents, covering a great variety of substances, and the chemical composition of any particular member of the group is not made generally known. It seems possible, however, that Eulan Extra is composed of one of the metallic salts or complex inorganic acids, such as hydro-fluosilicic acid or double fluorides of ammonia and titanium; Eulan W Extra, an acid compound, such as tripotassium difluorodisulphate or monopotassium monofluorophosphate; and Eulan RHF, a non-dyeing organic compound, such as ethylidenephenyl hydrazon or bis-nitrophenlymethyl-pyrazolone chloride.

Two methods of applying mothproofing agents are in general use—spraying and immersion. Choice of methods is determined by the type of material being treated and the particular compound used.

Various investigators differ somewhat in their opinions as to the effectiveness of several of the above-mentioned (and other) substances which have been suggested, these differences being due in part at least to the fact that there is no standard method for determining the degree of protection afforded. The efficiency of mothproofing compounds is ascertained by exposing treated and untreated samples of fabric to larvae of the clothes moth, but the tests vary greatly in detail with different workers.

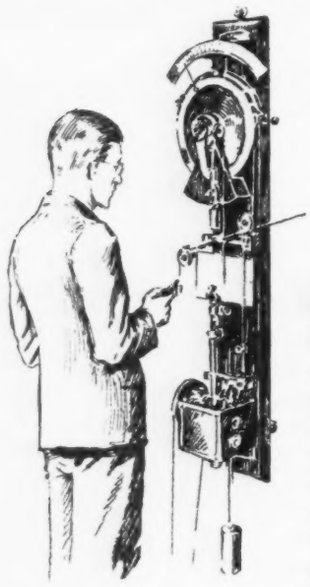
A factor influencing the choice of a mothproofing agent is the type of material to which it is to be applied. That is, for upholstery cloth and other fabrics which do not require laundering, the compound need not be fast to washing; on the other hand, for underwear, carpet yarns, and similar materials, the substance must be fast to washing.

The economic importance of minimizing the losses due to the clothes moth is obvious. Equally apparent should be the opportunity for the alert textile manufacturer to place himself in a position to supply mothproofed fabrics and to awaken the latent consumer demand for them.

USUAL DEGUMMING METHODS PROVE HARMFUL TO

Silk-Wool Unions

By H. H. Mosher
Chief Chemist, United States Testing Co., Inc.



SILK-WOOL unions are fairly numerous in the textile industry and find application for a variety of purposes. Ordinarily the silk is woven with woolen or worsted in the gum, and this necessitates the elimination of the silk sericin prior to the dyeing operation. Degumming is generally accomplished by disregarding the action of the boil-off liquors on wool and treating the combination as if it were composed wholly of silk. Such a procedure involves submerging the fabric in a soap solution at just under the boiling temperature.

Few manufacturers of silk-worsted unions recognize the magnitude of the adverse influence of such a procedure on their wool. The worsted is generally employed as the filling and is covered with a silk warp; and as body warmth and weight are usually prerequisites for these types of merchandise, heavy yarns are employed, possessed with considerable superfluous strength. The result is that losses in wool elasticity and strength escape detection during degumming, and the silk cover largely masks the development of wool harshness and brittleness. An objectionable yellowish cast is acquired by the union, necessitating a bleaching operation for whites and light shades; but even this is rarely attributed to the boil-off operation and is too frequently considered inherent to this type of material.

Silk-wool unions degummed in boiling soap solutions rarely dye to a clear, clean shade. A somewhat mottled product is often formed, but seldom arouses unfavorable comment; and the dyer is assigned responsibility because of uneven dyeing or an improper selection of colors.

Violates Sound Precepts

A little sound reflection upon the causes of the adverse condition of the wool in silk-wool unions will show the genesis of the trouble.

It will be noted, for example, that the boil-off operation violates most of the precepts of successful wool scouring. The degumming operation employs a temperature of close to 100°C. and a solution pH of at least 10.2. No fibers in common use for textile purposes, with the possible exceptions of the cellulose acetates, are as susceptible to the deteriorating influence of elevated temperatures and alkalinity as is wool.

The external serations on the fibers are loosened or destroyed, exposing the more sensitive cortex to the action of chemical reagents and atmospheric conditions. The luster of the wool is largely due to these epidermal scales, and in consequence the fibers become dull in appearance. Simultaneously changes occur in the wool cortex, and the fibers acquire a harsh hand, brittleness, and yellowish cast, which may deepen to a brown upon a very prolonged treatment.

Chemically, the wool fibers are composed of proteins and the keratin molecules rupture, the alkalinity evolving varying amounts of ammonia and hydrogen sulphide and producing free carboxyl and amino radicles in the wool molecule. The organic groups are active chemically, and in consequence, wool boiled in alkaline solutions possesses an enhanced affinity for chemical reagents and dyestuffs. This increased coefficient of color adsorption, while it may be desirable for certain purposes, is apt to be nonuniform between different fibers in the same fabric and cause unevenly dyed products.

Wool-Scouring Practices

Most successful wool scourers, aware of the unfavorable developments produced on their products by excessive alkalinity and temperature, exercise care in maintaining their liquors at the lowest practical temperature and basicity. Even under the best-controlled scouring conditions, some deterioration of wool is frequently unavoidable. Raw wool contains lanolin, suint, various oils, and accidental contaminants, such as sand, dirt, and even paint. Some of these may be very resistant to removal by the conventional scouring practices unless an excessively high temperature (60°C.) and alkalinity occur.

In order to obviate the necessity of exposing raw wool even to this temperature, some scourers, particularly in Europe, replace their soap-soda washing solutions by those containing an acid, an organic solvent, and an emulsifying agent. Yet, most of the manufacturers of silk-wool unions exceed this maximum wool-scouring temperature by 40°C., without a thought of its effect upon their fabric.

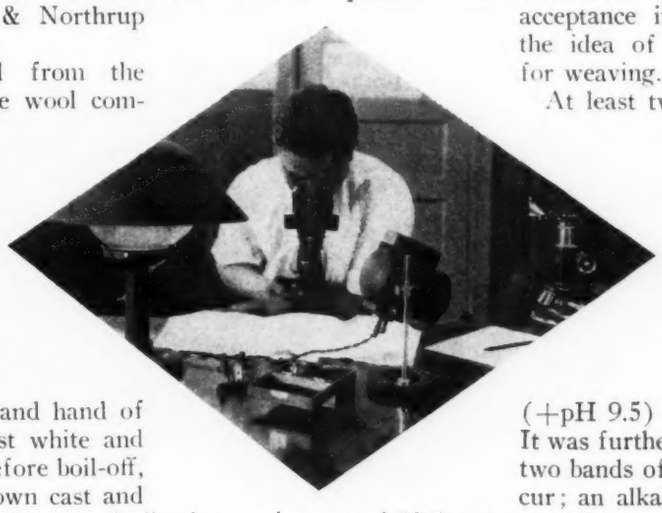
Highly magnified view of two wool fibers

In order to determine the magnitude of the adverse influence produced on the wool of a silk-worsted combination by the conventional dyehouse practices, material from a number of pieces were selected prior and subsequent

to degumming and were tested for breaking strength, elongation, hand, color, and dye adsorption. A heavy quality of Bengaline was selected as the media for test. This was analyzed and found to possess the following structural characteristics.

	Material	Color	Size	Grade	Ends
Warp	Japan Raw Silk	Yellow	28/30	GXX	18,000
Filling	Botany Worsted	Natural	3/30	.....	33

The material was arranged in skein form on sticks and submerged in a 1½% soap solution for 2 hr. at a temperature just below boiling. The boil-off liquor was tested for pH both before and subsequent to stripping the lot, and was found to yield values of 10.21 and 9.54 respectively on the Leeds & Northrup hydrogen ion potentiometer.



Swatches were removed from the pieces after boil-off and the wool compared with that in the untreated samples. It was found that the worsted yarn had lost some 33% of its initial strength, over 40% of its elongation, and had hydrolyzed to the extent of 4% of its substance in the hot alkaline liquors. Further indications of changes were also evidenced in the color and hand of the wool. The latter, almost white and soft and lofty to the touch before boil-off, had acquired a yellowish brown cast and exhibited a harsh and unpleasant facile impression.

The results proved quite conclusively that the conventional dyehouse practices of degumming silk-wool unions are very inimical to the wool and that superior quality combinations would attend modification or the elimination of the drastic boil-off operations.

Modifications Possible

This modification would be possible either by employing skein-degummed silk in weaving or by changes in the degumming procedure. The former procedure would not be likely to meet with the favor of many manufacturers of silk-wool combinations, because of economic considerations. The modern practice of weaving silk in the gum possesses many points of merit. The sericin acts as a natural size and protects the fibroin against the abrasive action of the various mechanical parts of the winding and weaving equipment over which the threads pass, thereby reducing chafe development. Without such a natural protective, some form of artificial size sheath would be required to envelop the fibroin. These are rather easily obtained, and the operation would not present any particular difficulty; but the additional process would increase the cost of producing the cloth. Moreover, many weavers are not equipped to do their own degumming, and the preparation and shipment of yarn to the dyehouse for stripping and return would present undesirable inconveniences and be considered a costly procedure. Again, many silk-wool unions contain the silk in crepe form.

It is sometimes assumed that a satisfactory crepe cannot be prepared from a fully degummed silk yarn. Such a premise, however, is not wholly correct. The writer has prepared, and seen produced, creped fabrics derived from stock stripped in skein form prior to weaving, which are comparable with the highest-quality articles prepared in the conventional manner. Changes in loom settings were, of course, required. The crepe was enveloped with a special size, but no more difficulty was experienced in weaving the cloth than occurred in running ordinary crepe yarns. The total cost of preparing the material was higher than normal. However, it appears probable that for many classes of unions the improvements in the final quality of the combination should more than compensate weavers for the additional costs in combining their worsted with a fully degummed stock.

Changes in the scouring procedure which would allow sericin removal from silk without simultaneously causing deterioration of the wool components of unions composed of these two fibers would be more likely to find acceptance in the textile industry than the idea of employing de-gummed silk for weaving.

At least two factors are of interest in silk stripping, namely, pH and temperature. It has been shown by the author that all methods of freeing fibroin from its sericin sheath, excepting enzymic action, involve the application of elevated temperatures (+190°F.) and either moderately high alkalinity (+pH 9.5) or high acidity (—pH 2.0). It was further shown that on the pH scale two bands of efficient silk degumming occur; an alkaline plateau between pH 9.5 and 10.5 and an acidic sector between values of 1.5 and 2.0. Solutions more basic than pH 10.5 or more strongly acidic than 1.5 attack the fibroin at the required temperatures for stripping, yielding a weakened and chafed final product.

Obviously, any method that might be employed to strip gum silk and wool unions must meet the requirements for successful raw silk degumming, and elevated temperatures and either moderately high alkalinity or strong acidity is required for this accomplishment.

Accurate Data Lacking

Very little scientifically accurate information appears in the literature recording the influence of these factors on wool. Chapin, Mullin, and others have shown that even at comparative low temperatures (+60°C.) wool is adversely affected in the alkaline scouring solutions or even in distilled water. Barmore has extended these studies up to 80°C. and proved that the fibers suffer losses in tensile strength, acquire discolorations, and develop a harsher hand. His observations have been confirmed by Midgley who also noted that a combination of temperature and basicity exerted a modification of the dye-adsorptive properties of wool. Unfortunately, all of these studies were made at only moderately high temperatures, much lower than those required for effective silk degumming.

Even less data exist on the deteriorating influence of acids on wool. It is very generally assumed that little or no damage results.

In considering means of improving the existing methods of stripping gum silk wool or worsted unions, it was deemed desirable to learn the influence of time, temperature, and the pH of the scouring liquor on the tensile strength, color, and dyeing properties of wool. Such an investigation was made, and the results will be reported in an early issue of TEXTILE WORLD.

Petroleum Products

IN WOOL OILING AND MACHINERY LUBRICATION

JUDICIOUS selection of petroleum products employed for lubrication of textile machinery and in the treatment of raw stock, sliver, yarns, and fabrics will minimize the danger of oil stains or other damage to the textile. Tests which have been adopted by the petroleum industry for determining quality of lubricants and specifications for a variety of processing and lubricating oils are outlined in the October issue of Lubrication, *published by the Texas Co. In the following paragraphs are presented abstracts of two sections of the original article—one dealing with oiling of wool and the other with knitting machine lubrication.*

IN THE manufacture of wool products petroleum oils serve a dual purpose. Not only are they the basic components of all machine lubricants, but they can also be used in connection with the oiling or conditioning of stock in order to soften the de-greased fibers and facilitate carding and combing. Wool oils may be either pure fixed oils, such as olive or lard, or emulsions from such products in compound with mineral oils and water.

Wool-Oil Characteristics

The essential characteristics of a wool oil are:

1. A low percentage of fatty acids.
2. A sufficiently high flash point to preclude danger in handling.
3. As low a tendency to gum as possible under exposure to the air; an oil which gums readily will oxidize rapidly, thereby increasing the danger of spontaneous combustion.
4. An ability to be washed readily from the goods. The ideal wool oil should not stain the goods at all.
5. Free fatty acids such as oleic, for example, should be as low as possible; otherwise there may be danger of corrosion occurring on certain parts of the machinery, such as the pins of the combs, or deterioration and rotting of the leather backings of card clothing.
6. The viscosity or body of the oil should be sufficiently light to permit proper penetration, yet heavy enough (commensurate with the wool under treatment) to insure that enough of it remains for proper results during operation.
7. It should be of a sufficiently non-drying nature to insure that stock which is to be oiled and then stored for any length of time will not become sticky, rancid or hard.

The oils which either alone or in compound will in general give the most complete satisfaction according to the above requirements are olive, lard, rapeseed, peanut, and certain other fixed oils. All these can be effectively compounded with mineral oils, thereby reducing the price per gallon considerably. Compared with pure fixed oils, mineral-oil compounds may be somewhat more difficult to remove from the fiber, especially if used to excess, due to lesser extent to which they can be saponified, or emulsified with water. Also for this reason, there will be a somewhat greater possibility of oil stains. On the other hand they serve the purpose effectively from the viewpoint of softening the fibers, providing a binder to keep them together, and lubricating them effectively during processes of picking, combing, and carding.

Mineral oils or compounds in which these may be the major constituent possess other advantages which are most desirable; they are low in acid content, they will not tend to gum or harden, they do not oxidize readily, thereby reducing dangers from spontaneous combustion, and they tend to cut or remove any natural wool oil which the stock may carry and which might prove injurious to card clothing. It is essential, however, that these products should be of a high degree of refinement, and also be compounded with utmost care. In fact, it may be stated that the ease with which they can be scoured out or removed will be a measure of the care of their preparation.

Knitting-Machinery Lubrication

Lubrication plays an important part in the knitting mill, in view of the extent to which it may not only influence machinery operations and power economy, but also the effect which oil spots or stains may have upon the goods. In order to reduce power and machine-friction losses, oil stains, repair expense, etc., and keep production at maximum, the purest grades of lubricants should be used at all times.

In general, knitting machinery, whatever its type or function, can be lubricated by four grades of lubricant:

1. A compounded stainless knitting oil of about 100 seconds Saybolt viscosity at 100° F., for all mechanisms from which oil drips might occur to damage the fabric.
2. A compounded pale oil of around 300 seconds viscosity for shaft bearings, etc., where the moisture content of the air may be abnormal.
3. A straight mineral engine oil of from 180 to 300 seconds viscosity for shaft bearings, cam mechanisms, roll bearings, and electric motors throughout the mill.
4. A pure grade of light grease free from acid or alkali for anti-friction bearings, gears, and driving chains.

Thus, a high-grade stainless knitting oil should be used for lubrication of the needle, guide, sinker and presser mechanisms, etc., of warp-knitting machines and needles and sinkers of full-fashioned machines. The cams and other operating mechanisms, including bearing boxes, should also be lubricated with the same oil; likewise in circular knitting machines, the roll take-ups and worm-gear attachments.

The essential point to remember in the lubrication of knitting machines is that the least amount of oil that will adequately lubricate the working parts is best insurance against occurrence of oil spots. If also the best grade of stainless knitting oil is used, lubricating problems should be practically eliminated.

Red Cross Cotton . . .

George S. Harris, in charge of Red Cross cotton distribution

HOW THE 500,000 BALES HAVE BEEN HANDLED

CONGRESS presented the Red Cross with the problem of bartering 500,000 bales of Farm Board cotton for clothing for the needy. The story of the difficulties encountered and overcome was told to members of the Cotton-Textile Institute by George S. Harris, of Atlanta, who has handled the Red Cross transactions. Mr. Harris expected to read his address at the annual meeting of the institute, but he was unable to attend and his paper was mailed to members.

Mr. Harris first cited the general problem of exchanging 500,000 bales of cotton, scattered in more than 100 warehouses, for cotton goods and then distributing to the Red Cross chapters. The first specific difficulty arose from the fact that the value of the cotton fluctuated. Several plans were tried, but it was necessary for the mills to engage in hedging operations to protect themselves with any of the initial schemes. Eventually, the payment of invoices with cotton was devised. Mr. Harris' paper follows, in part:

Up-to-date purchases include in round figures: 9,250,000 yd. dress cloths—principally 68-72 percales; 5,750,000 yd. ginghams; 9,500,000 yd. shirting—principally chambray (base weight 36" 4-yd.); 13,250,000 yd. outing flannels; 5,250,000 yr. of so-called muslins—including 48-48 and 56-60 sheeting, fine yarn sheeting and pajama checks; and 2,750,000 yd. of 27" bird's-eye. The total approximates 46,000,000 yd.

In the case of flannels, our requirements have reversed trade demands in that we have bought 70% in dark colors while these colors are usually limited to not over 25%. This is explained by the application of flannels for children's outer clothing to a far greater extent than is usual.

With the exceptions of one contract covering flannels and one other for chambrays which extend to the first week in December, all cloth contracts so far placed will be completed by Nov. 15.

For your consideration of market influence, it will interest you to know that 90% or more of this yardage was placed in the market between Aug. 15 and Sept. 20. In the dress materials, including ginghams and flannels, these operations have moved into consumption large accumulations of long standing. In a great many cases, our orders included the entire stock on hand. As further evidence of the value of these operations to the industry, your attention is directed to the fact that a great percentage of the consumers of this merchandise would not have bought it.

Beginning about the middle of September we stepped up rapidly our purchases in underwear, hosiery, overalls and trousers. Up to date, these purchases include 60,000 doz. men's trousers and boys' knickers, 50,000 men's and boys' denim overalls, 290,000 doz. pieces of knit underwear and 215,000 doz. pairs of hosiery. Further operations will be extended into these clothing items during October, while purchases of piece goods will be limited to fill-in requirements.

Payment of invoices in cotton is now well under way in the Red Cross Cotton Distribution Settlement office at 535 Gravier Street, New Orleans, La. The procedure follows:

When the central office in Washington has satisfactory evidence that shipments have been received at chapters and the merchandise is of the character and quality bought, invoices are approved for payment and forwarded to New Orleans. The vendor (Red Cross term for the seller) having previously advised the New Orleans office his preference as to grade and staple, New Orleans will then endeavor to find that type of cotton at a suitable point and will advise vendor that a specific number of bales is being held at a specific point, or points, at a specific basis. In effect, New Orleans will offer the vendor this cotton at a basis on the current New York trading month.

If the vendor is a spinner and can use the cotton offered, a basis satisfactory to Red Cross and the vendor will be agreed upon and vendor will call his market. This call is confined to opening or closing, New York, during next three business days, vendor advising New Orleans in advance what market he will use in his fixation.

After price is fixed the number of pounds necessary to balance invoices will be determined and transferred. Should the vendor be one other than a spinner or should he fail to agree on basis or for any reason should he so elect, he may sell his cotton before actual transfer is made. In this case he submits to New Orleans the best bid he can obtain for the cotton offered to him. Since he had no direct interest in the price, the final price accepted must be approved by Red Cross and this price fixes exact pounds transferred.

The procedure in arriving at an agree-to basis is exactly that used in cotton trading with buyer's limited call. The complete transaction has some unique features with which we are now having our first experience but it is believed that the setup in principle is fair and sound. Cotton manufacturers, North and South, are interested in the buying power of cotton producers and I hope will endeavor to take in Red Cross cotton against invoices where possible.

We have been able to give our cloth and garment contracts a very general distribution over that part of the industry offering merchandise of required character. Some few mills, North and South, have shown little or no interest but generally we have had full cooperation. Some few have been slow to offer merchandise and seem a bit disappointed when they now find our buying operation in piece goods running in a very limited volume.

Modernized Boiler Plant

GIVES 31% SAVINGS IN OPERATING COSTS

By S. B. Gammel

WHETHER to spend money to renovate an antiquated power-plant or whether to install modern equipment is a question which confronts many textile mills. The Willimantic Mills, of the American Thread Co., faced this problem a few years ago, and decided that in its case replacement of two separate hand-fired boiler plants by a single pulverized-coal-fired unit offered the best solution. The new plant has more than justified this decision, resulting in a combined labor and coal economy of $41,000 a year.

The Willimantic Mills was originally served by two boiler houses, supplying steam and power to two separated mills. Power from the engines located in both mills was transmitted by heavy belt transmission. At Mill No. 2 there was and still is a 800-hp. Corliss engine. At Mill No. 4, there was and still is a 1700-hp. Hewes & Phillips, twin tandem compound Corliss engine. About the only changes made recently in the engine room have been the addition of steam turbines. Electric power is also obtained from a 500-kw. remote-controlled hydro-electric plant. Some direct hydraulic power is also available.

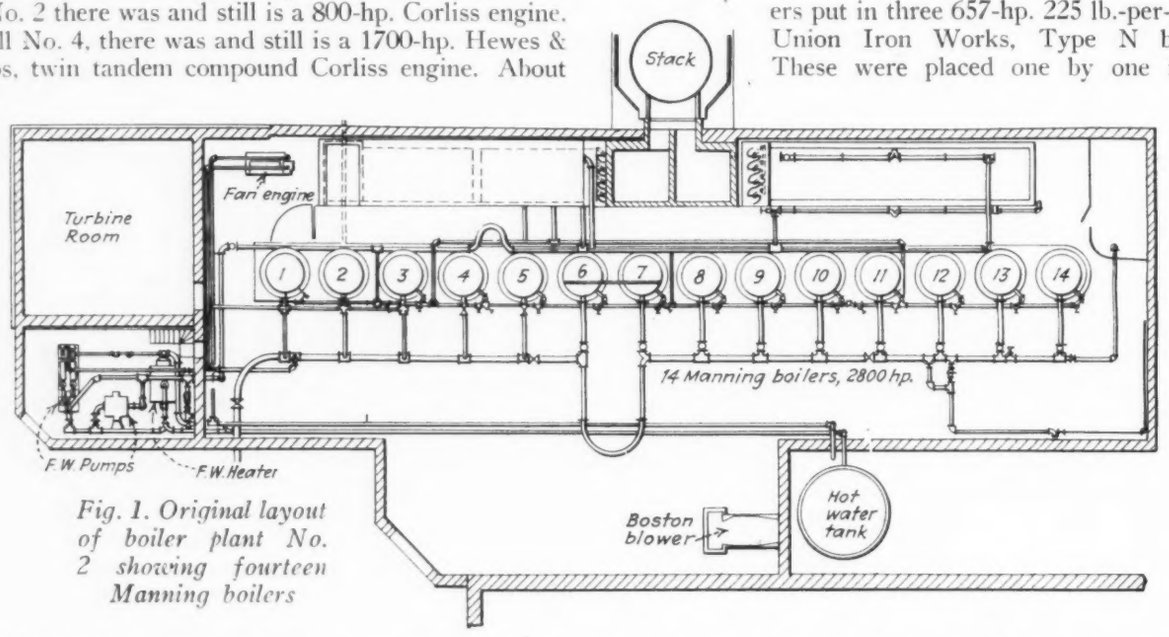


Fig. 1. Original layout of boiler plant No. 2 showing fourteen Manning boilers

Modernization Program

It was decided to replace the old hand-fired boilers because of the fact that although the old boilers were always maintained at the maximum operating efficiency, the equipment was nevertheless approaching the limits of utility. The first step in the modernization program was the replacement of the two separate boiler plants by an up-to-date centralized unit. The equipment in No. 4 plant consisted of four horizontal, hand-fired, water-tube boilers of 250 hp. each; one of these was a B. & W. unit, and three were Aultman & Taylor units. The equipment was over 40 years old. Plant No. 2 had fourteen hand-fired Manning vertical boilers rated at approximately 200 hp. each. Eleven firemen and two coal and ash handlers were required to operate both boiler plants. The original layout of Boiler Plant No. 2 is shown in Fig. 1.

The modernization plan called for a replacement of the fourteen Manning boilers in Plant 2 and the shut-down of Plant No. 4. The mill engineering department attended to the removal of the old equipment, prepared the foundation for the new equipment, and changed over the feed-water system. The manufacturers put in three 657-hp. 225 lb.-per-sq.-in. Union Iron Works, Type N boilers. These were placed one by one in the building containing the fourteen Manning units, so that there was no interference with the normal mill operation. Only ten of the old Manning boilers were taken out; the other four remain in place, but are not used. The three new boilers are constructed with front radiant-heat elements, rear water walls, and air-cooled side walls and floors, feed-water piping, 150-ton Jeffrey bunker and coal-handling system, three 6000-lb.-per-hr. Areo unit pulverizers, high-pressure steam header, pumping and heating equipment, and 1500 ft. of 7-in. steam line for delivering steam. The new layout of the boiler room is shown in Fig. 2.

With the shutting down of Plant No. 4, it became necessary to put in a new high-pressure steam line to operate the 1700-hp. Hewes & Phillips engines and also

to supply steam for other purposes. The Grinnell Co., Providence, R. I., installed a 1500-ft. run of 7-in. welded joint, high-pressure steam line of wrought steel. This line is suspended from steel supports and is covered with 3 in. of magnesia insulation, over which is placed a 1-in. layer of woolen felt. The steam line delivers steam from the new boilers to the site of the old horizontal boilers in No. 4 Mill, a distance of 1500 ft.

Feeding of fuel to the boilers is manually controlled at each pulverizer by a combination of raising or lowering of the coal feed sleeve for wide variation in steam demand and also by manipulation of a 21-speed controller on a small d-c. motor which drives the feed table. Bailey boiler meters and Ranarex recorders are used to check the steam demand with fuel feed and air control.

Air Supply Control

Air supply and combustion are controlled by fans in the unit pulverizers. These fans furnish the draft necessary to circulate the air downward from the top of the sidewalls, under the furnace door to a duct on the front to rear center of each boiler and under the boiler room floor. The air is controlled in such manner as to make it go directly to the primary air fan or be directed through the full length of the pulverizer for drying wet coal. The temperature of the preheated air varies from 170° F. at low rating to 285° F. at high rating, with a fairly clean floor.

There are two boiler-feed pumps, a heater, and subsidiary equipment installed in a separate place at one end of the boiler house. Of the boiler-feed pumps, one is a 150,000-lb.-per-hour Gould centrifugal unit powered by a 75-hp. induction motor for day use. The other is a Worthington duplex pump of the same capacity for night use. The heater is a 5000-hp. open Cochrane used for heating feed water. The heater is an open type one and maintains a pressure of 5 lb. Because of the fact that the heater is of the open type, it was necessary to have the heater vented; and several calibrated orifices were installed. The reason for this was that an open heater run as a pressure heater would soon become air bound; therefore the orifices were installed to prevent this.

A 100-g.p.m. centrifugal pump was installed, because a considerable amount of condensate takes place at all times. The pump recirculates the water in the feed-water heater by drawing the water from the bottom and returning it to the top of the heater. In addition, another small pump was installed in the pump room for the purpose of furnishing water for tube washing.

Hand Firing Eliminated

Under the present operating system, hand firing has been eliminated. Previously, small industrial dump cars hauled the coal into the boiler house where it was dumped in front of the boilers and fired by hand. Now there is a platform which is elevated 4 ft. above the boiler-room floor through which the coal cars travel. The coal is dumped into a hopper, which in turn delivers into a crusher. Apron conveyors and a bucket elevator in turn conduct the coal to an overhead storage bunker which feeds directly to the Aero pulverizers.

The entire coal-handling equipment is located in the boiler room; and when this system first was placed in operation, difficulties arose because of the dust created. With four cars entering the boiler room at one time and being dumped, dust went flying all over the boiler every time a car was emptied. This problem was solved by making a connection with the Aero pulverizers, and part of the primary air is taken from a hood which covers the track hopper.

Economies Effected

With the modernization program completed, economies were the result. Instead of the eleven firemen and two coal and ash handlers required previously, four men are needed with the modernized boiler plant. One fireman on each watch (8-hr. shifts) and one general utility man on duty during the mill running time only are all the help required under the present system. The firemen clean one or two furnaces each night, depending on the number used during the day. The utility man gets rid of the ash, takes care of the coal bunker, and does the general cleaning of the boiler room.

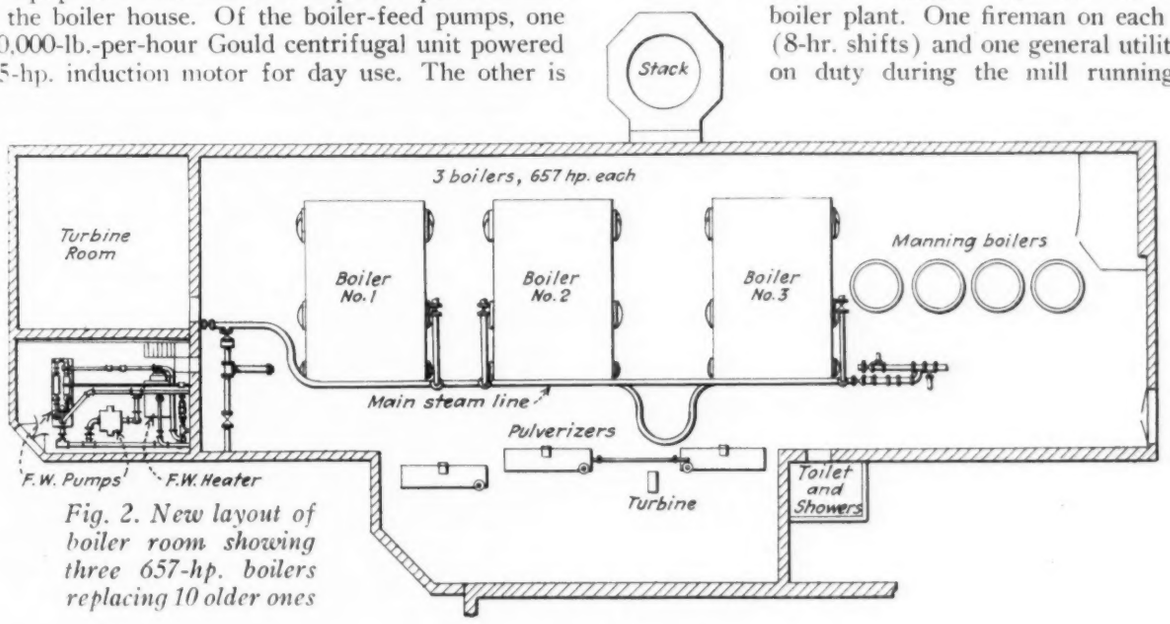


Fig. 2. New layout of boiler room showing three 657-hp. boilers replacing 10 older ones

Shutting down of the old boiler plant containing the four horizontal boilers resulted in further economy. It released the time of the assistant operating engineer at that plant to such an extent that he has been able to take care of a portion of the mill transmission system, thus reducing costs in that direction. The total savings effected by the modernization of the boiler plant—that is, reduction in labor and fuel costs—have amounted to $41,000 a year, or 31% of previous operating expenses.

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in September is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "About Engineering Studies" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Overseers'

ABOUT ENGINEERING

"IT'S no secret that for several months some of our leading competitors have been taking business at prices considerably below our quotations," Superintendent Chase said upon opening the overseers' meeting. "Our system of determining manufacturing costs, we believe, is accurate and as good as any method used by the other people, but the chief has begun to question the efficiency of our plant layout. The bankers have been asking the old man some pretty direct questions about our manufacturing properties. He wants me to say whether or not I would welcome a study of our machinery organization by one of the engineering firms. Before giving my answer, however, I would like to know just how you fellows feel toward the chief's proposal to engage the services of an outside engineering organization. What have you to say, Pete?"

"If you had asked me a year ago," Pete declared, "I would have been opposed to the idea. There have been so many new developments in the industry, however, that I believe we would learn some things from the engineers. We have tried to keep up with improvements in manufacturing technique but, after all, our jobs have kept us too close at home to follow all the new developments. The engineers have studied conditions in many different mills, so they should be able to help us considerably,

Promoting Second Hands

Editor, Overseers' Round-Table:

An organization should not have to go elsewhere to fill any of its higher positions when vacancies occur. Once in a great while it may be necessary to do so, but this should be the exception rather than the rule. It reflects upon the general character of the organization to be compelled to hire overseers, superintendents and agents, instead of promoting them from within the mill.

Every executive position should have a man in training to fill the job ahead as soon as it is open. Many will say that this is a costly procedure. But is it any more costly than seeking here and there, trying this man and that man, until the right one is found? Is it any more costly than to have a disgruntled group of men who may have spent the greater part of their lives with one mill, giving the best that was in them, hoping against hope that when the boss moves up (or out) that their opportunity would come—only to find that an outsider got the job? Is it any more costly than to have a dissatisfied group of men who only put half-hearted effort into their work because of this great inequality? The answer to all of these questions is "no"!

One of the greatest organizers that this country has ever known, Andrew Carnegie, considered his organization of men far superior to and greatly more valuable than any of his financial holdings. Mr. Carnegie realized that the position which he enjoyed was not due so much to his own technical knowledge, but more to his ability to get other men to do their very best for him, to cooperate with him, to follow out his instructions, and to follow that leadership which only good teamwork can inspire. A. P. HENNESSY.

Editor, Overseers' Round-Table:

If a vacancy occurs in a mill, and it is possible to fill it from within the organization, I think it should be done, rather than to go outside for a man. Promoting men as vacancies occur gives an incentive for the rest of the workers, and tends to make everyone do his best.

Bill's objection that a man who has worked himself up cannot keep discipline among the men he worked with is rather weak, for while he may have trouble at first, if he is the right kind of man and shows that he means business, he will be able to get along fine.

As to bringing new blood into the organization, that sounds good, theoretically; but if the man is the right type to deserve promotion, he will have kept abreast of the times by attending the meetings of textile men, visiting other mills, and reading the textile papers. With the wealth of ideas and news carried by the papers, a youngster should be able to hold his own, and more. "SOUTHERNER."

Editor, Overseers' Round-Table:

In selecting an overseer, the second hand should be the preferred candidate. He has been through a period of training and has worked hard with the position of overseer as his goal. He has been loyal and faithful to his overseer and has relieved him of the petty and annoying details. He has learned from observation, study, and experience and is worthy of promotion. He has had a share in maintaining the quality standards and discipline of his department.

As a successful second hand, he has earned and kept the respect of his workers. He knows the routine and the important details peculiar to his mill, because he has been brought up with them. He is ambitious and reliable, else he would not have reached his present position. His promotion to overseer will inspire another young man in the mill to study and make something of himself also. It will not disrupt the department, or interfere with the present well ordered system; whereas, if a man is hired from the outside, there will be an unsettled feeling among the workers. "OVERSEER."

Editor, Overseers' Round-Table:

There is sound reasoning in the views expressed by both Pete and Bill, and they have almost completely covered the question. But to be fair to both management and the workers, a happy medium must be striven for. We do well up here in New Hampshire and almost all of our mills can point with some pride to many of their prominent executives who have risen from the ranks. Occasionally we note the addition of a young graduate textile engineer in the mill, starting way down the ladder and spending a few years in the practical harness of hard work, and then taking a place in the management personnel.

Round-Table

STUDIES

and certainly we would have everything to gain and nothing to lose by one of these manufacturing reports. You know the Brown Mill was able to reduce costs quite a bit as a result of machinery reorganizations that were recommended by the engineering firm engaged to make a study there last year."

"All the engineers that I've met, with one or two exceptions, were too theoretical," Bill drawled. "In the first place, they suggest a lot of changes that will not work out satisfactorily, and the mill is torn up as long as they are around. The company is paying us to manufacture goods as cheaply as we can, not forgetting the quality standards of the mill, so why employ engineers to do the things we are supposed to do? Of course we need some new machinery, but we've explained the situation to the chief, and he will spend the money for new equipment when we can afford it. The engineering services will add unnecessary expense, in my opinion, the way things are now."

▸Would you favor proposal to engage an outside engineering firm to make a study of the machinery organization in *your* plant?

It would seem that it is unfair to seek to take trained overseers from our competitors who have spent considerable effort in training them over a period of years. Of course when trained overseers are out of work, due to slack times and for other reasons, and they can show satisfactory reference, it is natural to want to obtain their services when we are in need of them. By all the laws of sound business, however, it is better to comb the forces within our own organization to see if we cannot promote and encourage our men to fill the vacancy. Too many firms allow good material in the shape of energetic second hands and section men to become stagnated for the lack of assistance in their every day work problems by sound teaching from their superiors. As to a promoted man not being able to handle his former fellow workmen, this is bunk, for a man worthy of being promoted will master that. CHARLES H. WILLEY.

Editor, Overseers' Round-Table:

I want to agree with Pete in saying that the second hand should get the promotion to the overseer's place, if he is capable of handling the position. If a second hand has successfully run his job for several years, studied and prepared himself for a better position, why go outside and employ a new man who will come in and probably tear up a well organized department? He would spend money to get the department organized to suit him and still not get any better results than the second hand who is prepared for promotion could obtain with the organization he has grown up with. Let the company show its men that they can be promoted, and there will be a more contented and progressive set of employees.

G. W. LEISTER.

Editor, Overseers' Round-Table:

Whether a second hand should be promoted to overseer depends mostly upon whether or not he really has the qualifications for advancement. A good second hand does not always make a good overseer. For instance, dyers have usually had varied experience in other mills, which has helped them considerably; and a second hand who has been at one mill during all his life is lacking in this respect.

Although the second hand may know his job exceptionally well, I favor hiring the best man from an efficiently operated mill. Let the second hand seek advancement as an overseer in another mill where he would be more respected by the workers. E. S. DUNLAP.

Editor, Overseers' Round-Table:

In regard to promoting men to higher positions, it all depends upon the experience these men have had. For instance, I have known cases in which second hands were promoted who had never had experience outside of the mill in which they were promoted. These men would go along satisfactorily as long as the mill ran on one certain style of goods, but if the mill changed over to another construction, they were completely lost. Of course, it is only fair to promote the second hand, provided he has had enough experience; if not, it is better to hire an outsider with plenty of experience.

FRANCIS J. MCNEICE.

Editor, Overseers' Round-Table:

In getting a new overseer I believe in promoting a man who has been with the mill, instead of going elsewhere to hire a man. When an employee is sure of getting a better job, he is going to have more pep and take more interest in his position. As for having good discipline, if he has the ability to run the job, he will certainly have the ability to keep good discipline among the workers under him. I say, always promote when you have a man who deserves it.

When you bring a man in from the outside, you may discourage the men in your own organization and everyone knows that this may have results that have far-reaching effects. C. W. C.

SUMMARY

PROMOTING SECOND HANDS. *Approximately 67% of the letters urged the promotion of deserving second hands, as opposed to the policy of hiring overseers from other mills, expressing the opinion that promotions had an excellent effect upon the morale of the mill's personnel. It was pointed out that, if the second hand is the right type, he will have kept informed as to new developments and, moreover, will have the ability to maintain discipline in his department. About 26% believed that the best man available should be given the position of overseer, regardless of whether he had been with the mill a long time or was an overseer in another mill. Only 7% of the letters were in favor of employing men from other mills to fill vacancies, rather than promoting second hands. They advanced the theory that outsiders were not handicapped by previous intimacy with the workers and, therefore, could handle them impartially.*

THE PERSONAL PAGE

ABBOTT TURNER, president of the Bradley Mfg. Co., has been elected also president of the Eagle & Phenix Mills, Columbus, Ga. He succeeds his father-in-law, W. C. Bradley, as head of that concern. Mr. Bradley was elected chairman of the board of the Eagle & Phenix Mills.

A. O. DAWSON, president of Canadian Cottons, Ltd., Hamilton, Ont., was reelected chairman of the executive committee of the Canadian National Chamber of Commerce, during the recent annual convention held in Halifax, N. S.

J. M. GAMEWELL has been elected president and treasurer of Alexander Mfg. Co., Forest City, N. C., but will continue to make his headquarters in Lexington, N. C., where he is treasurer of the Erlanger Cotton Mills.

JULIAN ROBERTSON, general manager of the North Carolina Finishing Co., Salisbury, N. C., has been elected vice-president of the Alexander Mfg. Co., Forest City, N. C.

ABNER NASH, formerly with the Mooresville (N. C.) Cotton Mills, and previously with the Patterson Mills Co., Roanoke Rapids, N. C., has been elected assistant secretary and treasurer of the Alexander Mfg. Co., Forest City, N. C.

L. W. ROBERT, JR., Robert & Co., Atlanta, Ga., is vice-chairman of the Sixth Federal Reserve District of the Robertson Industrial Rehabilitation Committee appointed at the instance of Pres. Hoover. THEODORE SWANN, of Swann Chemical Co., is chairman.

CHARLES BITTMAN, of Cone Export & Commission Co., New York, has been reelected president of the Downtown Textile Credit Group, Inc., at the annual meeting held at the Arkwright Club. Other officers elected are WILLIAM F. EGELHOFER, of Henry Glass & Co., first vice-president; GEORGE L. MILLER, of Charles Chipman Sons Co., Inc., second vice-president; GEORGE BREITENBUSH, of Minot, Hooper & Co., reelected treasurer and H. J. PISCHEL, of Joshua Bailey & Co., secretary.

L. B. KENNINGTON, Cochran, Ga., was recently elected president of the newly-organized Georgia Cotton Ginners Association which held its initial meeting in Macon, Ga. B. S. DOBBS, Athens, is first vice-president and F. N. WATKINS, Macon, is secretary.

DR. L. A. KOEPPEL, general manager of La France Plushes, Ltd., Woodstock, Ont., since 1927, has resigned and will be replaced by HARRY N. UBELACKER, sales and office manager.

RUSSELL E. DILL, executive vice-president of John N. Stearns & Co., silks, has also been elected vice-president and general manager of Dai-Ichi Raw Silk Corp. of America, New York importers of Japanese, Chinese and Caucasian silks.

MARVIN A. YOUNG, connected with J. & J. Cash, Inc., Belleville, Ont., Canada, in various capacities for a number of years, has been appointed sales manager.

D. ADAMSON PARKYN, Manchester, England, was elected to the board of directors of the Wabasso Cotton Co., Ltd., at the annual general meeting in Three Rivers, Canada.

ROBERT ROUT WEST, new president of Riverside & Dan River Cotton Mills, Danville, Va. Born in Washington, D. C., Dec. 30, 1893, Mr. West was graduated from Harvard in 1915. His textile experience has included positions with Lawton Mills, Plainfield, Conn.; Pacific Mills, Columbia, S. C.; Roxbury Carpet Co., Saxonville, Mass.; and as agent and treasurer of Lancaster Mills, Clinton, Mass. Mr. West went to Danville Mar. 10, 1930, as assistant to H. R. Fitzgerald, late president. He was elected a director on Jan. 22, 1931, and made vice-president and production manager. In this capacity, he succeeded to the active control of operations two months later upon the sudden death of Mr. Fitzgerald, at which time James I. Pritchett was elected president and treasurer. Upon the death of Mr. Pritchett, Sept. 25, 1932, as the result of an automobile accident, Mr. West was elected to succeed him as president and treasurer, with John M. Miller, Jr., of Richmond, Va., as chairman of the board.

OLIVER P. GREENWOOD has resigned as vice-president and general manager of the New York Insulated Wire Co., Wallingford, Conn. D. F. DAVIS, formerly of the Davis-Jones Co., Providence, R. I., insulated wire, has been named general manager in charge of sales, and RALPH H. MOUNT, formerly of the Anaconda Wire & Cable Co., Pawtucket, R. I., and Marion, Ohio, is the new factory superintendent.

FREDERICK W. EASTON of Pawtucket, R. I., former president of the Waypoyset Mfg. Co., and prominent in the industrial life of the city, has been elected honorary president for life by the Blackstone Valley Safety Council. The election was in connection with Mr. Easton's 80th birthday, which occurred this month.

L. LINSEE WELD has been elected treasurer and general manager of Suncook (N. H.) Mills, Inc., succeeding W. ROPMAN PEABODY. Mr. Peabody continues as a director. Mr. Weld has been a director of the company for the last five years, and will have offices at 70 State St., Boston, Mass.

A. E. CUTHBERTSON has succeeded the late C. V. HARDING as president of Harding Carpets, Inc., Brantford, Ont., Canada. He will continue as general manager.

W. IRVING BULLARD, former treasurer of National Association of Cotton Manufacturers, has retired as vice-president of the Central Republic Bank & Trust Co. of Chicago. He will devote his time to the E. H. Jacobs Mfg. Co. and Williamsville Buff Mfg. Co., both of Danielson, Conn., of which he is treasurer.

A. C. LINEBURGER was reelected president and S. P. STOWE, secretary-treasurer of the Climax Spinning Co. and the Majestic Mfg. Co., Belmont, N. C., at their recent annual meetings.

WALTER STUNZI, president Stunzi Sons Silk Co., New York, has been appointed to the silk committee of the Textile Color Card Association. DAVID THOMAS, of C. K. Eagle & Co., succeeds WALTER P. TAYLOR on that committee.

S. BRUCE SMART has been elected treasurer of Fruit-of-the-Loom Mills, Inc., to succeed CHARLES G. TODD, resigned. WILLIAM S. SPATCHER has been elected secretary, succeeding Mr. Smart. Col. Todd started business in 1878 with Coffin, Altemus & Co., which later became Converse & Co. He has the possibly unique distinction of having had a business address on Worth St. for 54 years. He now plans to grow grape fruit in Texas.

G. WALKER WRIGHT has succeeded the late H. T. POE as secretary of the F. W. Poe Mfg. Co., Greenville, S. C.

ARIE CONTANT has resigned as business manager and buyer of the Millbank Bleachery, Lodi, N. J. Mr. Contant rounded out 23 years of service with Millbank in October.

REX H. PELZ has resigned from Cannon Mills, Inc., after four years as merchandising manager of that organization's sheet and pillowcase department. Prior to joining Cannon he was for a number of years with Pacific Mills, in charge of sheets and pillowcases.

ALBERT J. MALLEY, SR., for the last four years general superintendent of finishing at the Washington mill of the American Woolen Co., is now assistant superintendent of finishing at Arlington Mills, Laurence, Mass.

TRACE ADAMS has been named vice-president of Arnold Print Works, North Adams, Mass. He is also plant manager.

WILLIAM E. GEE, for many years with the American Woolen Co., has opened an office in his own name in Cincinnati from which he will handle lines of H. W. T. Mali & Co., and Peerless Woolen Mills in adjacent markets.

AUGUST H. SCHLUETER, former sales manager of Combier & Co., has joined the sales force of Stunzi Sons Silk Co., New York.

J. R. MOORE has retired as secretary and treasurer of Alexander Mfg. Co., Forest City, N. C., after many years in the mill business with that company and previously with the Henrietta Mills, Caroleen, N. C.

Nine of the prize winners at the recent golf tournament held by the Chattanooga Textile Association. The winners totalled 16. R. C. Anderson won the cup with a score of 131. Other winners follow in order Neil Thomas, Henry Bryan, Howard Cappel, D. O. Blevins, Thos. A. Bowles, A. M. Bryan, Frank Cater, John Lovell, F. G. Henley, John Chrosniak, Robert Baker, Lelan Coggins, Scott Probasco, Sam Diggle and Adolph Scholler.

R. H. HOMMEL has been appointed vice-president and general manager of Mercury Mills, Ltd., Hamilton, Ont. He was for many years chief executive for two large chain store organizations.

JOHN BANNON, now with Defiance Bleachery, Barrowsville, Mass., will succeed HARRY R. PINCKNEY, who recently resigned, as manager of the Lincoln (R. I.) Bleachery & Dye Works of the Lonsdale Company. WILLIAM BANNON, now in charge of the Mansfield Bleachery, will take the place of JOHN BANNON at the Barrowsville plant, in addition to his duties at the Mansfield Bleachery.

J. W. MCELHANNON, formerly agent of the Lowe Mfg. Co., Huntsville, Ala., has been appointed plant manager of the Selma Mfg. Co., Birmingham, Ala.

JOSEPH GEISLER, Providence, R. I., formerly with the Clyde Print Works, has been appointed general manager of the Standard Piece Dye Works, Paterson, N. J.

FOREST W. BOYD, sales manager of the Nyanza Mills, Woonsocket, R. I., for the last six years, has resigned to re-enter the yarn brokerage business. He will establish an office in Providence.

FRED HOLMES, wool buyer for the Hillsborough Mills, Wilton, N. H., has resigned and accepted a similar position with the Stillwater Worsted Mills, Harrisville, R. I.

H. R. HART, superintendent, Durham (N. C.) Cotton Mfg. Co., recently resigned to accept a similar position with the Aiken plant of the United Merchants & Manufacturers, Inc., Bath, S. C.

J. O. WILLIAMS, superintendent of the Green River Mfg. Co., Tuxedo, N. C., has also been appointed superintendent of the Pisgah Mills, Brevard, N. C.

ARTHUR A. ROBERTS, purchasing agent of the Lafayette Worsted Co., Woonsocket, R. I., has become associated with the Boylston Oil & Chemical Co. of Boston as sales representative.

CHARLES J. EDWARDS, former superintendent of the Eastern Finishing Works, Kenyon, R. I., is now in charge of the printing and solvent water-proofing departments of the Southeastern Finishing Co., an affiliated plant, at Huntsville, Ga.

A. CHARNESS has joined the Montreal sales staff of the Bruck Silk Mills, Ltd. He was previously Montreal sales manager for Brupbacher Silk Mills, Ltd.

G. HORNSYLD, designer at the Monadnock Mills, Claremont, N. H., has resigned to become chief designer for Thomas J. Capper, Inc., Charlotte, N. C.

J. H. FAGAN, superintendent of the spinning division of Union Mills Co., Monroe, N. C., has accepted a similar position with Anchor Mills, Huntersville, N. C.

C. E. DAVIS is new superintendent of the Enterprise (Ala.) Cotton Mills, succeeding J. B. KNIGHT, resigned.

L. H. SMART, Concord, N. C., has been appointed superintendent of Carter Mills, Lincolnton, N. C.

L. V. ROGERS has resigned as overseer of weaving at the Slater (S. C.) Mfg. Co., to become night overseer of weaving at the F. W. Poe Mfg. Co., Greenville, S. C.

FRED LLOYD, Metheun, Mass., has been promoted to overseer of the dyeing department at the Assabet Mills of the American Woolen Co., Maynard, Mass.

ERNEST H. MILLER, connected with the Associated Dyeing & Printing Co., Inc., Paterson, N. J., for five years, has resigned.

R. A. LITTLEJOHN, formerly overseer of weaving, Mills Mill, No. 2, Woodruff, S. C., has accepted similar position with Pelzer (S. C.) Mfg. Co., No. 4 plant.

W. W. HARRIS, formerly overseer of spinning, F. W. Poe Mfg. Co., Greenville, S. C., has accepted a similar position with Entwistle Mfg. Co., Rockingham, N. C.

Obituary

ARTHUR H. LOWE, aged 79, only man in the industry who has been president of both the National Association of Cotton Manufacturers and of the American Cotton Manufacturers' Association, died at his home in Fitchburg, Mass., Oct. 27. He was born in Rindge, N. H., 1853. In 1879 with John Parkhill and T. R. B. Dole he formed the Parkhill Mfg. Co., a leading gingham producer, of which he was treasurer and manager. Mr. Lowe also organized the Lowe Mfg. Co., Huntsville, Ala. and served as treasurer. He was partner in the former commission house of J. Harper Poor & Co.

WILLIAM STURSBERG, aged 85 years, president of W. Stursberg, Schell & Co., died Oct. 9 at his home in Great Neck, L. I. He was born in Germany in 1847 and entered his grandfather's importing firm in New York as a boy. The firm of which he was president was formed in 1893. Its predecessor built the Germania Mills, Holyoke, Mass., in 1865. Mr. Stursberg was treasurer of that mill and president of Livingston Worsted Co., Washington, R. I.

GEORGE C. HETZEL, aged 74 years, president and founder of George C. Hetzel Co., Chester, Pa., died at his home in Ridley Park, Pa., Oct. 20. He was long prominent in the woolen industry.

THEODORE TIEDEMANN, 84 years old, chairman of the board of Theo. Tiedermann & Sons, silk and rayon commission merchants died at his home in Greenwich, Conn., on Oct. 15.

FRANCIS COOPER PINKHAM, aged 72 years, a pioneer cotton goods commission merchant, died at Brooklyn, N. Y., Oct. 11. He was associated in succession with Amidon, Love & Co., Converse, Stanton & Cullen, W. H. Burgess & Co., and Tatum, Pinkham & Greey.

SAMUEL EISEMAN, aged 72 years, a dean of the silk industry, died recently in New York. In 1881 he formed the firm of Samuel Eiseman & Bro., which in 1917 became Samuel Eiseman & Co. and liquidated in 1928. He had lately been New York manager for the Waldrich Bleachery, Delawanna, N. J.

JAMES JAMISON, aged 70 years, prominent in the hosiery field since 1887, died Oct. 23 at his home in East Orange. He was associated with the Thomas S. Fuller Dept., of Speilman & Co. in the 90s. This firm later became James Jamison & Co.

GEORGE WRIGHT, 67 years old, since 1903 president of Davis & Furber Machine Co., died at North Andover, Mass., Oct. 16. He joined the machinery firm in 1880, but had been retired from active business for the last 20 years.

BENJAMIN HALLIWELL, president and treasurer of the Halliwell Worsted Co., Pawtucket, R. I., died recently at Lincoln.

ADOLPHUS NOTT WOOD, aged 86 years, first president of Gaffney (S.C.) Mfg. Co. on its organization in 1892, died at his home in Gaffney on Oct. 7.

LEVERETT A. BRIGGS, treasurer of the Ashaway (R. I.) Woolen Co., died on Oct. 5, in his 75th year.

ABEL PETERSON RHYNE, aged 89, one of the founders of the American Cotton Manufacturers Association, and its vice-president, 1897-1899, died at his home at Mount Holly, N. C., after a brief illness.

GEORGE H. ZIMMERMAN, aged 82, for over 43 years treasurer of Union Mfg. Co., Frederick, Md., hosiery, died at his home in Frederick, Oct. 27. He was one of the founders of the company in 1887.

GEORGE W. DAVIS, treasurer of Henry A. Davis Sons Co., Providence (R. I.), woolen manufacturers, died in Providence Oct. 21. He was 68 years old.

Washington

SEES CHALLENGE TO TEXTILE INDUSTRY

By Paul Wooton,
Washington Correspondent, TEXTILE WORLD

◆ *This is the first of a series of monthly letters from our Washington correspondent. Through these letters, it is hoped that readers may be kept in touch with thinking in the national capital; and may be supplied with an interpretation of events there. Readers are invited to suggest subjects on which they desire information.*—Editor.

WERE any industry, other than textiles, operating at nearly 100% of single shift capacity, it would be sitting on the top of the world singing "Happy Days Are Here Again." The reason the textile industry is still in the doldrums, despite its relative activity, is attributed by those in Washington who study such things, to destructive competition and to a lack of appreciation of what could be accomplished in the fields of distribution and utilization. The textile industry is quick to utilize the newest ideas in mechanization but it is slow to see the need of better technology, they say. Any number of schools have chemical engineering courses, for instance, but where can graduate work in spinning technology be obtained? There is only one school with a graduate course in cotton technology. As a result there are plenty of men who know how to run looms and who know how to weave but few have studied the properties of the cotton fiber.

While the need for thorough-going research is seen as the most important lesson of the depression, the hard times also have emphasized again that some way must be found of keeping production in step with consumption. This is interpreted to mean that there must not only be intelligent cooperation but more attention has to be paid to market analysis and to new uses.

Customer practices have changed greatly since the beginning of the depression, it is pointed out. Buying naturally was on a hand-to-mouth basis when prices were declining. This was true of all commodities. It is stated by market analysts that two weeks of normal retail buying at nearly any time during the last two years would have depleted the retail stocks of three-fourths of the principal items carried in the average retail establishment. Improvement in delivery services, particularly for small consignments, and the greater use of these forms of delivery since the depression, are expected to result in even lower normal stocks than were carried prior to 1930. There is no longer much uncertainty about the prompt handling of shipments. The influence which will build up stocks is the realization on the part of the buyer that the price is likely to be higher when his next purchase is made.

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Despite the times, textile specialists in Washington feel that the possibilities of new uses and of the export trade continue to offer great potentialities to the American textile industry. While the volume of exports has fallen off greatly, the American export trade in textiles has suffered less than has that of any other exporting country. A slowness on the part of the industry to adopt suggestions for new uses is reported. For instance, it is claimed that there is no reason why shoes should not be packed in canton flannel pockets. Buyers of silverware have come to expect that their purchases will be delivered in a canton flannel container. There is even more reason, it is argued, why shoes should be similarly merchandised. The container could be tacked on the wall of the closet to afford a convenient place to keep the shoes, while an extra one could be used as a shoe "rag." In normal times shoe sales average three pairs per capita per year in the United States. If manufacturers could be induced to put even their better grades of shoes in such containers a steady market for a million yards of material might be created. The initiative should come from the textile industry.

It is recognized by textile specialists in Washington that much good work is being done in research and in promoting new uses. The underlying purpose of the comment here on this subject is to stimulate the industry to more intensive efforts.

"None disputes that the anti-trust statues make it difficult to keep production in line with consumption but much can be done, authorities believe, under conditions as they exist at present. . . . Were agreements as to prices entirely legal, there would always be the bootlegger. One swallow may not make a summer but one price-cut seems to be the signal for everyone to follow suit."

▼

None disputes that the anti-trust statutes make it difficult to keep production in line with consumption but much can be done, authorities believe, under conditions as they exist at present. Even were the Sherman act repealed outright, it would not be a panacea for over-production as is evidenced in the United Kingdom. The British have no anti-trust statutes and, in fact, encourage constructive cooperation among producers, but it has not solved the over-production problem. Were agreements as to prices entirely legal, there always would be the bootlegger. One swallow may not make a summer but one price-cut seems to be the signal for everyone to follow suit.

It is suggested that textile manufacturers might be well advised were they to confer with manufacturers of automobiles. There has been no charge that the automobile manufacturers are violating the anti-trust laws but nevertheless they have been able to keep their production in close relationship with demand. There are other industries that have made great progress toward the realization of reasonable profits when they are operating at anything like average capacity. It is true that there are 1,200 cotton mills and only two score manufacturers of automobiles. It is admitted that this makes the task more complex but that offers even more reason, it is argued, why the textile industry should be making a careful study of its problem to coordinate production and sales. When producers will cut up their goods into short lengths so that they may be shipped abroad as remnants, the feeling is that it is time to do something to get the business on a healthier basis.

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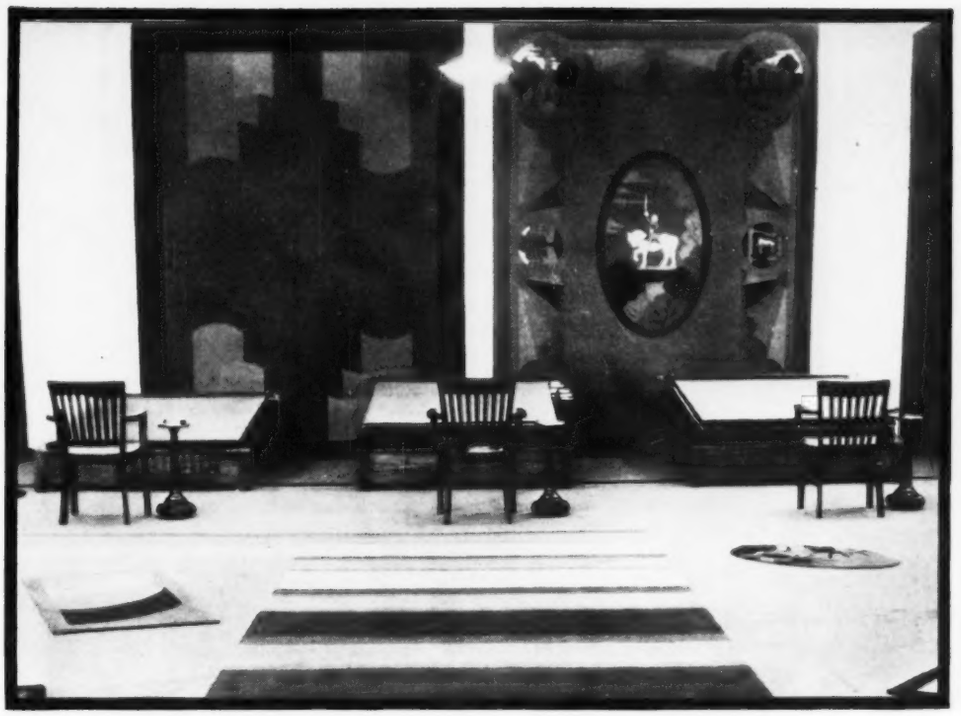
A depression promotes constructive thinking and reports reaching Washington indicate that textile manufacturers are thinking more seriously than ever before on the fundamental problems that surround their business. There never was a better opportunity, it is suggested, for textile manufacturers to join with manufacturers in other lines to plan for closer cooperation between industry and agriculture. Twenty-five percent of the people are on farms and another 25% are dependent upon agriculture so that 50% of the people are in no position to buy from industry when agriculture is prostrate. There is talk of an "Institute for Industrial Integration" which would be representative of commerce, industry and agriculture. Since agriculture is just as dependent upon industry as industry is upon agriculture, the thinking element among the farmers would be expected to contribute their full part in such an undertaking. The situation which surrounds all these fundamental activities cannot be analyzed with the naked eye. Some additional instrumentality must be provided.



Display room for Seamloc carpets in L. C. Chase & Co. offices showing Washington Bi-Centennial rug

KEYING

Textile Selling Offices

TO MODERN MERCHANDISING

THE textile selling scene has changed. Australian black beanwood with chromium trim replaces the golden oak and brass of a bygone day. Straight-lined simplicity in furniture and decoration is a far cry from the voluptuous roll-tops and multitudinous gadgets that filled offices three decades ago. There is now conscious effort to curtail details so that undisturbed attention of the buyer may focus on the goods the office has to sell.

The new spirit has grown largely as a twin brother to the newer merchandising plans and methods. Display of the product—not only in retailers' windows and in national advertising media, but in its own home office—has become most important. The revamped, modernized office is something of an index to the industry's merchandising attitude. Some manifestation of this new spirit is now to be found in every commission house or mill sales office. It may be only one illuminated showcase or a French type telephone in an otherwise Victorian layout, or it may be a completely custom-made outfit in harmonizing pattern from door knobs to display cabinets, with luxury and charm given free rein. In the best creations, however, sight is never lost of the fact that this is a stage-setting for the sale of goods and for the daily conduct of business.

1902 **Roll-tops, gas lights, and gadgets galore—no decoration, no display**

Interviews with several executives responsible for offices which have been born anew within the last 12 months disclose that layout is the most important single factor in the change. Subordinate to proper and efficient layout, comes a pleasing scheme for decoration. The decorator or architect can do much to make long corridors look short, to use suitable color combinations in walls and

Looking down the sales line at Cannon Mills

Sales-floor of Fruit-of-the-Loom Mills

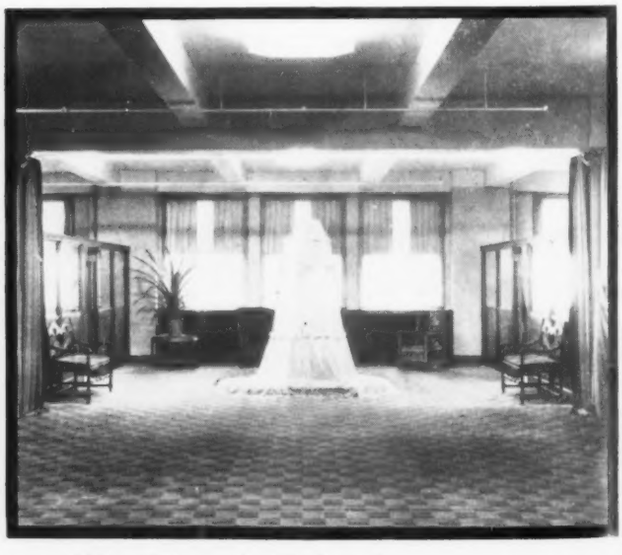
Pacific Mills sales and display space

hangings, to utilize an awkward column in such a way as to make it seem that the column is an essential in the picture rather than something that at first may seem a hopeless barrier to symmetry. However, the appearance, which often seems the end of office modernization, is after all only a means to cover the bare skeleton of a really efficient arrangement and to translate the spirit of the organization into an impression which customers absorb without effort. The layout must result in saving steps and time; the decoration must be the proper setting to facilitate reception of customers and sale of goods.

Though the formula is simple, its applications and results are innumerable. For any one location there are probably a limited number of layouts that will serve to best advantage, but there are infinite ways in which space may be colored, draped, lighted, carpeted, and equipped with desks, cabinets, files, tables, chairs, etc. Let it be said in passing that a modern office need not necessarily be "modernistic." That is only one type of decorative scheme; others (many without particular names) serve equally well and are regarded quite as up-to-the-minute. Some offices are done in "early American"; many continue to use successfully the simple and common business furniture that is so devoid of decoration as to place it in no particular period.

Offices are also being currently planned on two diverse but equally successful schemes. There is on one hand the open office space broken by partitions and attractively furnished in good business taste, and on the other the office composed of a series of small completely walled rooms done in the intimate manner of a living room or library. The Pacific Mills is an example of the former; Berkshire Knitting Mills of the latter. Both are illustrated on these pages along with other representative types of current practice.

Street-window displays by mill offices where location permits them are innovations of the last few years. Not so long ago, a visitor to the Worth Street



Sidney Blumenthal & Co. salesroom entrance

H. R. Mallinson & Co's. New York sales and executive office showing display of goods on tables and in windows fronting on Fifth Avenue

district in New York would not have seen a yard of goods from one end of the section to the other unless a packing case cracked open in unloading from truck to sidewalk. Today many of the windows are models of artistry in what can be done in attractive display of yard-goods. They are consciously "models," as it is hoped the retailer may be inspired thereby to go and do likewise. That display is a vital merchandising factor is indicated by the experience of one drapery firm which had its office revamped by an interior decorator. This firm was persuaded against its will to frame four drapery patterns for hanging in its sales room. The sales manager later admitted that enough business was done on one of these patterns alone in the first month to pay for the entire redecorating job. The skeptic may say that that pattern would have sold well anyhow, but the sales manager gives credit to the display.

The trend is to drape, upholster and carpet in the mill's own product where possible. One mill made up several hundred yards of a curtain fabric duplicating a

Credit men in Commercial Factors' office

American Bemberg and American Glanzstoff Corps.

An office in Berkshire Knitting Mills' suite

Where Jantzen Knitting Mills lines are sold

foreign sample submitted by the decorator in order that all fabrics in its office might come from its own looms. Rayon firms make good use of their offices to show the practical use of rayon fabrics in interior decoration. A men's wear manufacturer has urged that his salesmen dress in their mill's products. And so goes the effort to show the buyer not merely swatch books but the fabrics in actual use.

Women have played an important part in changing the appearance of textile sales offices. Among the work done by Bess Hypes Blackburn is Pacific Mills and Fruit-of-the Loom Mills, while L. C. Chase & Co. and Goodall Worsted Mills have been decorated under the guidance of Eleanor Le Maire.

Of course the job must be made to pay for itself in efficiency of layout and attraction to customers. "A thing well displayed is half sold" said some unsung Shakespeare, and the principle is working out in numerous offices.

Along with the trend to better display come new efficiencies in specially designed office furniture, cabinets for garments and sample pieces, desks and tables for sample books, double-duty furniture to avoid travel from files or bookcases to desks, etc. Lighting schemes are carefully thought out to serve both beauty and utility. The office is made comfortable and usable. It is no longer just a place to hang your hat; it is a place to live and work.

Goodall Worsted Co. display of Palm Beach suits

ADVERTISING PAGES REMOVED

INDUSTRY-WIDE EVENTS

Replacement Equipment Buying Continues

The trend toward purchase of textile equipment for replacement purposes, which set in very shortly after the improvement in demand was first felt, continues to be noticeable. The volume of such buying is still relatively small, and can hardly be designated as a major movement, but the scattered instances continually being reported are encouraging to those who recognize the tremendous need for plant modernization in all branches of the industry.

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U. S. Institute Holds Annual Meeting

Dr. E. B. Millard, of Massachusetts Institute of Technology, was the principal guest speaker at the annual meeting of the U. S. Institute for Textile Research held in New York Nov. 3. His subject was "What Organized Scientific Research Can Do for the Textile Industry."

Other features included a symposium on "Scientific Textile Research in Progress or Planned," in which Franklin W. Hobbs, Prof. Louis A. Olney and Dr. W. E. Emley participated; a symposium on "A Program of Economic Research for the Textile Industry," discussion of which was introduced by Paul T. Cherington; and a report by Harold DeW. Smith on that part of the recent meeting of the Faraday Society in England devoted to the colloidal aspects of textile chemistry.

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Committee D-13 Meets At Akron

The fall meeting of Committee D-13 of the American Society for Testing Materials, held at Akron, Ohio, Oct. 27-28, was well attended, over 50 members and guests being present. The program included subcommittee meetings, general sessions, plant inspection trips, and banquet.

It was announced at the meeting that the subcommittee on rayon is working on a method for determining the fiber content of rayon yarn and fabric, i.e., the residue after removing water and oil. In response to an invitation from the rayon subcommittee of the American Association of Textile Chemists & Colorists, A. M. Tenney has been appointed as representative of Committee D-13. A complete revision of the rayon specifications is being undertaken.

The subcommittee on cotton yarns has perfected its arrangements for the collection of a range of yarns, and data thereon, and will test these under standard conditions with the idea of proposing possible revisions of the Draper strength tables.

The subcommittee on tire fabrics is working on calibration methods for both tire cord and horizontal testing machines; specifications for holland cloths; and strength standards for tire cord made from various types of raw cotton.

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Power Show Timely

In view of the necessary postponement of modernization of industrial power plants during the last few years, it is felt that today industry is handicapped by much depreciated and obsolete power equipment. Since there are numerous indications that the upward turn in business has set in, it is believed that the tenth annual National Exposition of Power and Mechanical Engineering, to he held at Grand Central Palace, New York, Dec. 5 to 10, will be opportune.

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Discuss Long Draft

The important subject of single roving versus double roving for long-draft spinning and the progress made toward the application of long draft to roving were discussed by the Textile Division of the American Society of Mechanical Engineers at its technical meeting on Oct. 19, in the Poinsett Hotel, Greenville, S. C., during the Southern Textile Exposition. The discussion consisted mainly of a paper, published on page 72 of this issue, by J. L. Truslow, research engineer of Whitin Machine Works, Whitinsville, Mass. The meeting was presided over by J. A. McPherson, engineer with J. E. Sirrine & Co. and chairman of the Greenville Section.

At a dinner in the evening, of which H. D. Learnard, research engineer of Pacific Mills, Lyman, S. C., was toastmaster, two papers were presented discussing the position of and opportunities for the engineer; viz., "Ground Floor of Engineering," by Eugene O'Brien, editor of *Southern Power Journal*, Atlanta, Ga., and "Engineer's Relation to Public and Profession," by W. S. Lee, vice-president and chief engineer, Duke Power Co., Charlotte, N. C.

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Engineers Meet at Boston

Several of the latest developments in textile machinery were discussed by the Boston Section and the Textile Division of the American Society of Mechanical Engineers, meeting at the Massachusetts Institute of Technology, Cambridge, Mass., on Oct. 27. The following papers were presented: "Textiles as They Are," by Prof. E. R. Schwarz, of M.I.T.; "Recent Developments in Spinning," by James L. Truslow, of Whitin Machine Works; "The All-Electric Dye Jig," by C. E. Robinson, of Reliance Electric & Engineering Co.; and "Variable-Speed Spinning," by C. L. Irwin, of Reeves Pulley Co.

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Sees Continued Credit Caution Necessary

No matter whether the present improved demand in textiles is permanent or temporary, a credit man should maintain the same conservatism as has prevailed during the last year, in the opinion of Robert G. Blumenthal, vice-president of the Commercial Investment Trust Corp., who spoke at the first fall meeting of the New York Chapter of the National Institute of Credit.

"I do not conceive it as the function of the credit man to check credits which can be repaid only if the turn has come," said Mr. Blumenthal. "His business is not to become a partner in the firm that he checks. His credit judgment should be based on the ability of the debtor to repay even under adverse conditions."

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Eames Elected Safety Section President

Dr. Charles H. Eames, president of Lowell Textile Institute, was elected general chairman of the textile section of the National Safety Council at the meeting held last month in Chicago.

Speakers at the sessions included M. W. Heiss, of Proximity Mfg. Co.; Herbert A. Spears, of Warwick Mills; T. T. Trolinger, of American Bemberg Corp. and American Glanzstoff Corp.; and E. G. Padgett, director of safety, North Carolina Industrial Commission.

Textile Calendar

Cotton Manufacturers Assn. of N. C. annual business meeting Carolina Hotel, Pinehurst, N. C., Nov. 17 and 18, 1932.

National Association of Woolen & Worsted Overseers, annual meeting, American House, Boston, Nov. 19, 1932.

American Association of Textile Chemists & Colorists, annual meeting, Greensboro, N. C., Dec. 2 and 3, 1932.

Tenth National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Dec. 5 to 10, 1932.

American Society of Mechanical Engineers, annual meeting, New York, week Dec. 5 to 10, 1932.

Silk Assn. of America, annual dinner, New York, January, 1933.

National Knitted Outerwear Association, exposition, Grand Central Palace, Feb. 13 to 17, 1933.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, Apr. 24 to 28, 1933 (tentative).

National Cotton Week, May 15 to 20, 1933.

American Society for Testing Materials, annual meeting, Stevens Hotel, Chicago, June 26 to 30, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1933.

QUESTIONS AND ANSWERS

Automobile Carpet

Technical Editor:

Some time ago the writer saw a piece of automobile carpet, woven two-shot, with a brussels face, which had been made using a filling pick to form the face in place of the customary wire or wire motion. Could you advise us whether the change can be made on a heavy type, plain four-harness loom? We are of the belief that this weave can be effected by changing the cams. We are of the opinion that 27 in. or ¾ is the style, or width, universally used for this type of carpeting. (7920)

This automobile carpet could be made on a heavy type of four-harness loom with single shuttle box, although it can be more satisfactorily produced on looms provided with shuttle-box motions. It has been made mainly on ingrain looms, the second shuttle used enabling a very bulky filling to be inserted under the wool warp only, to provide the brussels or loop effect (picks 1 and 4 of weave). Such a fabric will be produced by the weave shown in Fig. 1 with the following particulars: first and second warp ends, 8/3 cotton; third end, 40/2 wool-waste yarn; fourth end, three ends 14-lb. jute; first and fourth filling picks, heavy paper yarn; second, third, fifth, and sixth picks, 12-lb. jute. (Crosses in Fig. 1 represent warp up.)

Fig. 1 shows the ordinary tapestry or brussels weave with a first and fourth pick inserted extra to take the heavy filling in place of the wire. An extra pick of jute can be used if the looms have no shuttle-box motions, this extra pick also weaving under the wool warp only. For these first and fourth picks a bulky, usually paper, yarn has been used, although a heavy, full waste yarn would serve as well. The most suitable of the other possible filling yarns is a single jute thread around 10 to 12 lb., assuming that the carpet wanted is around 180 to 200 dents, based on a 27-in. width and about a 6- to 8-wire fabric. Suitable warp yarns would be 8/3 for the cotton (binder yarns) and 2-ply face yarn reeling around 40 yd. per oz. in the 2-ply state, made probably from reworked wools and wastes, with the addition of probably waste jute stocks for economy's sake, and three ends of 14- to 16-lb. jute working as one thread for the fourth end.

If cams can be more conveniently mounted to repeat on three picks, then the weave in Fig. 2 with the following particulars will work: first warp end, 8/3 cotton; second end, 40/2 wool-waste yarn; third end, three ends 14-lb. jute; first filling pick, paper yarn (or 12-lb. jute); second and third picks, 12-lb. jute. This weave is more likely to have bad places in it requiring mending, as where two cotton ends are used in a dent one can be out for a few picks without making a real bad place, whereas such a defect always shows where only one cotton end is used. The take-up of the single cotton thread would be almost twice that of each of the two cotton ends in the first weave.

Three separate beams for cotton face yarn and jute would have to be provided for in each instance. The greatest tension should be on the jute let-off to form the base of the carpet, which should lie flat in the finished state. There should be sufficient tension on the cotton let-off to bind the face and back picks (that is, picks 2 and 3 and 5 and 6 in the first weave) reasonably well. Tension on the face yarn should be quite light to give as much brussels effect as possible. It should be borne in mind that either of these weaves adds 50% to the shuttling as compared with wire-motion carpets.

The basic carpet width for describing all carpet or rug weaving particulars is 27 in., but these automobile carpets are demanded in rolls of a width to fit the needs

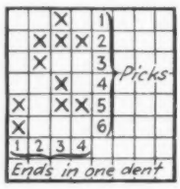

Fig. 1. Tapestry or brussels weave with extra picks

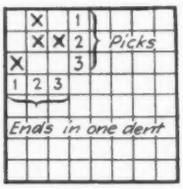

Fig. 2. Weave repeating on three picks

of the car maker, which, according to the type of car and the place it will be put in that car, vary ordinarily between 27 and 45 in. in width. This necessitates, of course, the loom being at least these widths before the carpets can be commercially produced. To fill up the reed space on broad looms which are multiples of these widths, two or more strips may be woven together with a false selvage on the inside edges, these false selvages being made on the leno or similar principle, which is usually acceptable to the car makers. The individual strips can be cut as they pass to the breast roll on the loom or in the finishing operations, whichever is more convenient.

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Resist Spots in Dyed Hosiery

Technical Editor:

We are enclosing three stockings which are spotted in the mercerized heels. These stockings were dyed in paddle machines by the one-bath method, oil being used to degum the silk, direct colors to dye the cotton, and acid colors to dye the silk. Out of 40 doz. stockings, 1½ doz. of various shades were spotted. Will you kindly give us your opinion as to the cause of the trouble? (7905)

We believe that these spots are caused by wrinkles formed by turned-in heels in the gray stockings when sent to the dyehouse. When a stocking is inspected in the gray over the board for trimmings, loose threads, bad seams, holes, etc., some operators have the habit of stripping the inspected hose from the board with a jerk which at times leaves the toes or the heels turned inside. If this occurs, the careful inspector snaps out the folded part; but sometimes this fold is carelessly left in the hose, making this portion of the stocking thicker and wrinkled. In degumming and dyeing, the turned-in part is extremely difficult to penetrate. The result is uneven dyeing or resist spots.

To prevent a recurrence of the trouble, investigate the stock in the gray when received in the dyehouse. If stockings are found which have turned-in heels or toes, bring them to the attention of the man in charge of the inspection room and have him correct the condition.

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Twists in Cable Cord

Technical Editor:

We are interested in knowing how to manufacture cable cord. We should like to know if there is any set rule that has been established in figuring the twist, both in the first doubling and then in the cable. We have observed that in the first doubling there is considerably more twist than is used in the regular warp twist for that particular ply. (7786)

Cable cord, as the name implies, consists of three twists. First there is the single yarn, spun left or reverse, then two-ply twisted in the same direction as the single, and finally the finishing twist of three two-ply threads twisted in the opposite direction.

The singles have a spinning twist of three times the square root of the count, if the intention is to use a combed peeler yarn up to 70s. Above that it is advisable to use a longer staple and reduce the single twist to 2.75 times the square root of the count. If the intention is to use carded peeler for the coarser numbers, four times the square root is a better multiplier to use up to 60s; and if combed peeler is used past that, three times the square root will be sufficient.

Starting with a 32s single, in the two-ply this will give an equivalent of 16s. With a square root of four, the two-ply twist should be 17 turns or 4¼ times the square root of the count. The finishing twist, 32/6 ply, equals 5.33 with 15 turns—$\sqrt{5.33} = 2.31$, giving 6.50 times the square root. These multiples, three times the square root in single, 4.25 in two-ply, and 6.50 in the six-ply, may be carried up to 60s.

A 60s six-ply, for instance, in the two-ply twist should have 24 turns, which is $\sqrt{30} = 5.47 \times 4.38$. But the six-ply would be 60/6, or 10 single; $\sqrt{10} = 3.16$. With a finishing twist of 20 turns, the constant would be 20 divided by 3.16 or 6.3.

A 100s six-ply in the single would be, 100/2 ply = 50; $\sqrt{50} = 7.07$. With 25 turns the twist constant would be 3.53 times the square root of the count, a little less twist being required on account of the longer staple.

The finishing twist for 100s would be 24. 100/6 = 16.6. $\sqrt{16.6} = 4.08$. Then 24 turns divided by 4.08 gives 5.88 times the square root of the count—a little less than the coarser numbers for the same reason that less twist is given two-ply and for the added reason of keeping the balance intact.

QUESTIONS AND ANSWERS

Different manufacturers have slightly different ideas, and their threads will show their individual preferences; but the foregoing may be checked up against the six cords now on the market and will be found to be reliable as a working basis.

Care must be taken in doubling the two-ply preparatory to finishing and twisting; for the two plies, being twist on twist, produce a very lively thread that must be doubled under tension, preferably while wet and on 1-lb. bobbins, or else kinks will result. In the finishing twist it is often necessary to use drag plates on the twisting frame, for a tumbling bobbin will cause considerable trouble.

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Small Holes in Silk Hose

Technical Editor:

In the enclosed stockings you will notice small holes, the cause of which we are unable to determine. It is not likely that it is a mechanical defect, as this would show up during one of the inspections preceding boarding. The boarder has found these holes in stockings before being boarded. (7877)

The small holes in the stockings sent in for examination are not, in our opinion, caused in the process of dyeing. The explanation that these holes are not visible during inspection of the gray goods does in no way imply that the holes were not there before the hosiery was sent to the dyehouse. Even if the holes were not visible at that time, what caused the holes in the finished product may have been already in the hosiery, invisible because the threads were not actually broken but were weak and ready to snap during the process of degumming and dyeing.

An examination of the broken threads causing the holes shows that there are no weakened threads other than those which were broken; and if the damage was done in the dyehouse, it would undoubtedly show up in larger holes than in this case. If some chemical strong enough to burn a hole in the silk fabric was used carelessly, the threads in the vicinity of the holes would also show some weakening, which is not the case.

To find the cause of this trouble, you should look to the cones used in the knitting room. Sometimes a carelessly handled cone develops rough edges which chafe the yarn and cause a consequent weakening of the threads. The threads may not be actually broken but, being held together by one or two slender filaments, may be just strong enough to be looped in knitting and then snap during the swelling of the sericin previous to its removal in the degumming bath. If a few layers from one of these cones were tested for breakage, it is possible that the trouble could be stopped right at the source.

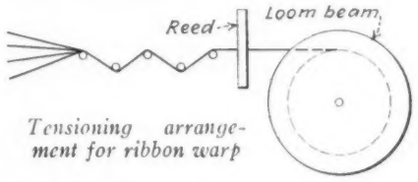
Another possible cause may be one or more rusty needles in the knitting machine leaving small particles of iron in the knitting. These specks would also be invisible but, confined in the loops of the damp fabric, would in a short time cause a rusty speck which could also break the thread, as in this case.

Ridges in Ribbon

Technical Editor:

I am enclosing a piece of ribbon, made of rayon warp and cotton filling. The ridges show in the gray goods also. The warps are made on a direct warping machine. What causes the ridges? (7883)

The ridges are caused by temporarily loose warp ends, and it will be noticed that they disappear as this looseness is taken up in the weaving. The trouble, no doubt, is in the warping. Probably the ends that



Tensioning arrangement for ribbon warp

are causing the trouble were drawn from large bobbins, or bobbins or spools that ran particularly smoothly, and that occasionally the troublesome bobbin or bobbins ran ahead of the other ends and thereby put more yarn into the warp. The remedy would be to cause all of the ends from the creel to pass over and under a number of revolving rods, as shown in the accompanying diagram. This will undoubtedly even up the tension on the ends.

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Severed Threads in Elastic Web

Technical Editor:

We are enclosing two samples of elastic web showing imperfections which the manufacturer claims are due to knots slipping in 300/1 extra-twisted rayon in the warp. We should greatly appreciate your candid opinion. (7888)

The imperfections appearing in these two samples are due to severed threads weaving into the fabric; but whether or not the cause is pulled-out knots, or threads that are broken in weaving, is impossible to ascertain, even after a most minute examination. The ends of the severed strands, on which our decision would naturally depend, are hidden within the fabric; and even if they were found after being compressed only a short period of time, the story they could tell is obliterated, unless (in the case of a slipping knot) the knots were tied by soiled hands.

The proper place to determine whether the imperfections are caused by slipping knots is at the loom. There the knots can be seen and watched; and when a severed thread weaves into the fabric, the ends may be examined under a glass. All of the filaments in an end of a thread in which the knot has slipped will be the same length (the knot generally having been trimmed with a pair of scissors); if the filaments are of uneven length, it may reasonably be supposed that the thread has broken or chafed out.

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Bobbins Discolor Silk

Technical Editor:

Under separate cover we are sending you a wooden bottle bobbin with a small portion of silk thereon. If you will examine the silk, you will note that it is discolored. Our bobbins are finished with a preparation furnished by the manufacturer. We use a backwinding solution which is made as follows: ½ lb. Texolive soap and 2 oz. of Imersol are boiled in a pail of water; to 4 lb. of this solution is added ½ pt. of Colloida oil. Will you advise us how we can avoid this discoloration of the silk. (7960)

We find that the discoloration is due to the nature of the backwinding solution. This type of solution is satisfactory for conditioning the silk for knitting, but it has a solvent action on many of the preparations used to coat bobbins. In addition to its solvent action on the varnish or finish, a solution of this kind also extracts some coloring from the wood itself.

The way to prevent discolorations of this character is to treat the wood with a varnish which is not acted upon by the backwinding solution. Synthetic-resin varnishes, for example, are often employed for this purpose. Rather than to attempt to apply these synthetic resins in your own mill, you may prefer to have the coating applied by one of the firms specializing in this work.

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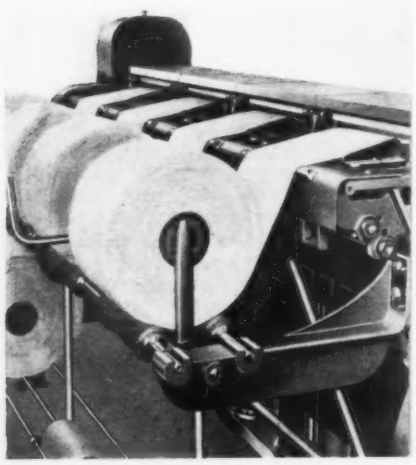
Dyeing Cotton Waste

Technical Editor:

We find that to obtain the same shade we have to use as much as 10 to 20% more dyestuff on peeler comber than on vacuum strips. Will you advise us why this is necessary? (7925)

When two lots of cotton require different amounts of dye to produce the same shade, as is often the case, we may ascribe the cause to one or more of several reasons. A finer fiber or the tips of the same fiber will need more dye, because the total surface to be dyed is greater than in the case of a coarse fiber. Wool dyers are quite familiar with this; the amount of dye visible to the eye is that which is on the surface of the fibers; and although there is a fair amount of penetration, there is never as much dye inside as on the outside. If the two lots have been subjected to different atmospheric conditions, either in the cotton field or in the warehouse, there will be a difference in the dyeing. So you may see a fabric with filling bars of deep and light color, although the goods may have been made of cotton from the same district and of the same grade. The goods will show every indication of uniformity until they are piece-dyed, when the bars will be in evidence. There seems to be no remedy for this condition except to make uniform blends of all stock on hand.

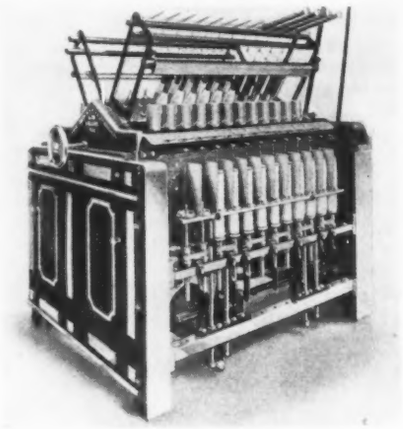


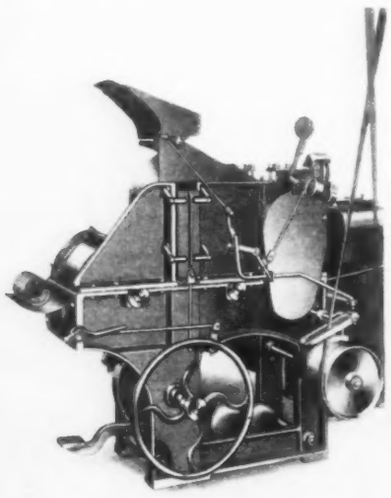
Controlled-Draft Drawing

THE controlled draft drawing process, recently announced by the Saco-Lowell Shops, Boston, Mass., involves the use of two machines—an improved lap winder and a new drawing frame. This new process is intended to overcome some of the major defects of the conventional type of drawing frame, such as the creation of thick and thin places caused by frequent stopping and starting, uneven places caused by piecing up ends, and uneven work caused by the stretching of the sliver at the back of the frame. It is claimed that the new equipment will show savings of approximately 33% in power consumption and in direct labor costs, and about 25% in the floor space required.

The lap winder differs from previous types in several respects. It is equipped with spiral gearing, self-aligning bearings, safety guards, and an improved device for holding the lap core in place. The machine has been designed so that the distance the sliver travels while out of control is reduced to a minimum. The cans of card sliver are placed directly under the lifting rolls, and are arranged eight on each side at the back of the lap winder so that the tension on each sliver is the same. The total weight of the lap is regulated by a stop motion that can be adjusted to obtain any desired yardage. The lap is subjected to a heavy calendering to prevent splitting and also to facilitate unwinding. The lap is regulated so that it will contain sufficient stock to fill a 12-in. roving can.

The drawing frame itself, insofar as the method of creeling is concerned, is radically different from the conventional type. As may be seen in the accompanying illustration, the laps made on the lap winder, composed of sixteen ends each, are placed at the back of the drawing frame, one lap to each delivery, and are carried on a pair of ratchet-toothed carrier rolls. The sheet of cotton touches the frame work at only one point and is therefore subjected to very little tension. There are five pairs of drafting rolls, the two back top rolls being metallic and the remainder of the top rolls being cork. The back rolls have a coarse pitch, with coarse fluting, and a width designed to prevent the impaction of seed and other impurities. The succeeding lines of rolls are progressively finer toward the front as regards the fluting. The arrangement of rolls is intended to provide accurate fiber control, which is said to be one of the principal factors in the evenness of drawing sliver. The coiler head is equipped with a new tube gear that permits loading the roving can with 15 to 25% more sliver than was possible with previous types. Weights are adjusted so that one lap exactly fills one roving can.





Worsted Ring Twister

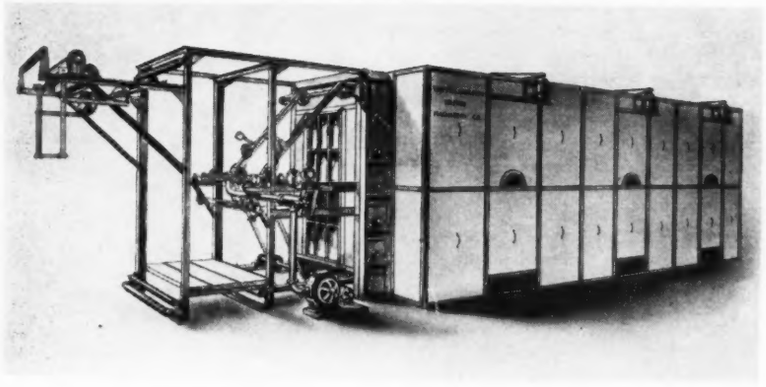
The "Magnum" ring twisting frame for worsted yarns, manufactured by Prince-Smith & Stells Ltd., Keighley, England, represented in this country by Atkinson, Haserick & Co., Boston, Mass., is designed to produce a bobbin containing ¾ lb. of yarn. This capacity is obtained without increasing the pitch of the frame to any considerable extent. The builder mechanism of the twister is suitable only for building a double-end bobbin on the ring system and can be applied only to machines on which the spindles are driven by tapes from the cylinder. The standard bobbin has the following dimensions: 12 in. over all, 11-in. traverse, 2¼-in. base, 1⅝-in. top, and 1 1/16-in. barrel. The building of this large bobbin is made possible by the following features in the construction and operation of the twister: (1) dual builder mechanism in which the spindle rail and the ring plate move simultaneously in opposite directions, the total traverse of each being equal to half the traverse of the bobbin, this reducing the extreme variation in the length of the balloon to only half the length of the actual bobbin used; (2) reduction in frictional resistance of the builder mechanism, due to the fact that the ring plates assist in balancing the weight of the spindle rail, spindles, and heavy full bobbins; (3) new type of ring spindle which is capable of carrying the heavy bobbin without vibration at high speeds; and (4) special construction of the lifter spindles, designed to give accurate alignment, necessary because of the extreme length of traverse. Advantages claimed are low production costs, due to less frequent doffs; yarn with minimum number of knots; and efficient warping from twister bobbins.

Acme-Graybar Chronolog

CONTINUOUS mechanical check on machine performance is provided by the Chronolog, a device developed by the National Acme Co., Cleveland, Ohio, and offered through the distributing facilities of the Graybar Electric Co., New York. The instrument is a compact unit which can be attached to the frame of the production machine, or it can be mounted separately on its own pedestal. Two interlocking oscillating switches, connected by flexible conduit, actuate the recording mechanism in the case.

The device includes a telechron clock and all interruptions of machine operation or production are recorded on a paper roll moving at clock speed. The Chronolog shows causes for idle time (if the machine is idle), accumulated idle time, accumulated production time, total pieces produced, amount of time consumed by the inspector, or by the maintenance man. The machine operator must dial the causes of variations in machine operation when they occur. The dial is provided with a set of symbols designating various causes for interruptions of machine operation. The machine serves as a time clock for checking on the operative's activities. It operates on 110-volt, 60-cycle current, and is provided with signal lights to warn the operator when the machine is idle. There are many possible applications for this new device in the textile industry.

AND PROCESSES



High-Speed Tenter Dryer

HIGHER operating speeds and "zone control" of temperatures during drying are features of the new "Hurricane" tenter dryer recently announced by the Philadelphia Drying Machinery Co., Philadelphia. Framework throughout this new machine and the frames which support the tenter chains are made of structural steel. The enclosure is provided with insulated panels, containing 1½-in. air-cell asbestos, and sealed with channel seals, to prevent loss of heat.

The "zone control" of temperature is accomplished partly by a special grouping of steam coils and partly by special arrangement of air circulation. Highest temperatures prevail in the upper portion of the dryer where the cloth enters, intermediate lower temperatures in the central part, and moderate temperatures in the lower portion where drying is completed. Steam coils are of the "fin" type and are arranged in separate banks alongside the stationary frame which supports the pin chain. It is stated that this form of heating surface does not require as much space as older types; and therefore permits a heavier grouping of coils in the upper portion of the dryer.

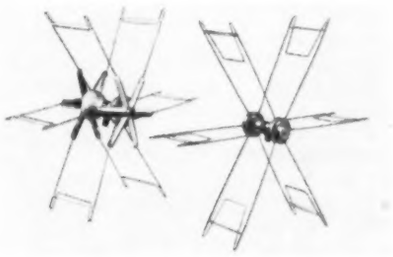
One pair of double-turbine-type blowers is mounted on a vertical shaft in each section of the machine. Each blower is provided with a casing, built in the form of an extended scroll, so that air delivered from the blowers is spread over an area practically the length of the section, thus tending to produce uniform drying and also to prevent the possibility of light cloth being blown from the tenter pins. The air current is forced through the cloth, and at the same time creates a slight pressure which tends to hold the cloth on the pins. Fresh air is admitted at the bottom of the machine, and as there are no heating coils in that section, the last two passes of cloth are subjected to a cooling effect. Excess moisture is removed by a positive exhaust fan on the roof. Economies claimed for this tenter dryer are reduced operating costs for labor and steam, less floor space, and reduced number of machines for a given production.

Full-Fashioned Machine

KNITTING full-fashioned hosiery at 96 courses per minute is made possible by a new machine introduced to the market by Robert Reiner, Inc., Weehawken, N. J. Running at maximum speed is not necessarily recommended, however; but if the machine is operated at say 68 or 72 courses per minute, a reserve speed is afforded which, as in an automobile, is expected to lengthen the life of the machine. A slowing-down motion permits narrowing at any speed desired, such as 50 courses.

The machine on demonstration at the Reiner plant is operating at the maximum speed, and it is noticeable that no part of the machine is subjected to any unusual vibration. An improved shock-absorbing motion renders the connection of the carrier with the stops so light as not to be felt. It is said to be difficult to detect any difference in the amount of power needed to turn the machine over at any point, whether this be while the carrier moves across or as the needles move downward or come back out of the sinker and knitting motion.

A new slacker arrangement is said to insure efficiency and satisfactory operation on fine threads and heavy yarns used in the same stocking. A shocking arrangement is designed to make possible the moving of the camshafts more smoothly and with a slower and more positive motion. For preventing damage to fine thread and weaker materials, an improved snapper arrangement is provided. A special leveling arrangement makes it possible to level and re-level the machine at any time without interfering with the operator.

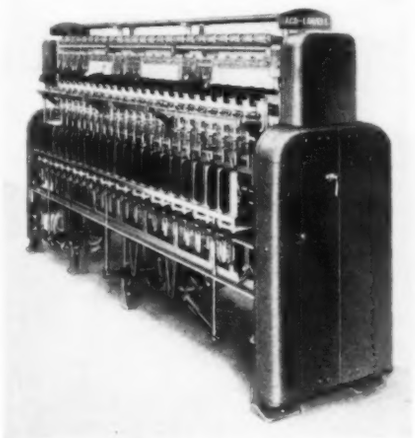


Light-Weight Wire Swifts

THE Atwood Machine Co., Stonington, Conn., recently introduced two new wire swifts which are constructed of rust-proof, tempered steel, light in weight and well balanced. These swifts are fitted with cotton bands which provide a rest for light silk and rayon yarns. The "Ideal" swift, shown at the left in the accompanying illustration, is adjustable. It may be collapsed to receive a skein merely by a twist of the wrist. The "Simplex" is a non-adjustable swift. Six or nine arm swifts are furnished in various sizes to hold skeins of 42-in. to 84-in. circumference.

Dual-Type Twister

A NEW dual-type twister offered by the Saco-Lowell Shops, Boston, Mass., which is designed for twisting fine rayon and cotton, is said to offer much greater production per square foot of floor space than previous types of cotton twisters. The machine makes use of the principle of the revolving-creel spindle, thus combining the two systems of twisting—up-twisting, in which the twist is inserted by rotation of the bobbin being unwound; and down-twisting, in which



the twist is inserted by the rotation of the bobbin which is being filled. The point at which these two systems are separated is the drawing rolls near the top of the frame. A water trough in the down-twisting system permits wet-twisting and tinting.

The row of creel spindles is located just back of the water trough. The supply package is placed on the creel spindle, which revolves at the rate of 9,000 r.p.m. Leaving the supply bobbin, the yarn passes upward through a flyer and two guides to the drawing rolls. Approximately half of the desired twist is inserted in the yarn between the supply bobbin and the drawing rolls, the remaining twist being inserted in the downward trip from the drawing rolls to the bobbin holding the twisted yarn. Since the yarn does not pass through the water or tinting bath until it has received some twist, it is claimed that rayon can be wet-twisted with a minimum amount of elongation and resultant loss in denier. The row of spindles holding the bobbins of twisted yarn is located below and to the front of the trough. It also revolves at a speed of 9,000 r.p.m., making the total production speed equivalent to 18,000 r.p.m. on a single spindle.

The frame of the twister consists of rigid cast-iron head end with steel doors, several cast-iron samsons joined by steel spindle rails and steel roller beams, while

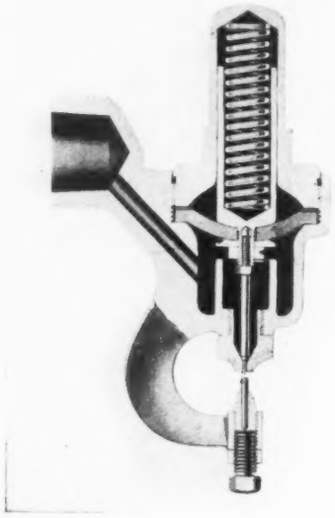
the whole machine is only 26 in. in width. The cylinder is of the double-wall construction and is supported in friction-reducing ball bearings.

The only adjustments necessary to reverse the twist are changing the direction of the motor and shifting the position of one gear. The machine is built with a 4-in. gauge.

The tape drive is so arranged that one tape drives eight spindles, four on the upper rail and four on the lower rail, the assembly being such that any pair of spindles may be stopped without slowing up the speed of the other six spindles in the same group. The McMullan type of spindle with large-capacity oil base and heat-treated blade is used. Provision is made for either wet or dry twist. Each immersion guide can be raised individually, or the whole side can be raised at the same time.

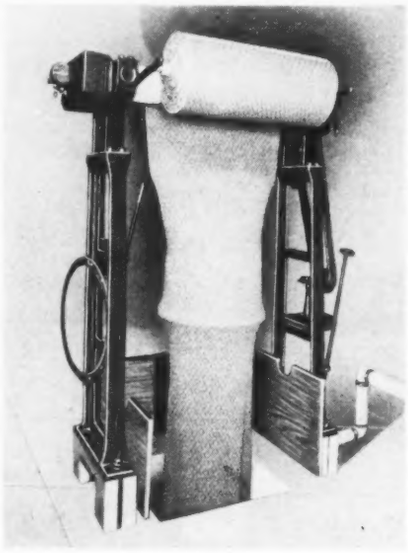
The flyer used on the spool containing the supply of yarn, whose friction is merely to control the balloon of the yarn, is self threading and easily applied. The bottom drawing roll is steel, while the top roll may be either cork, leather, or steel.

The dual-type machine is particularly suitable for twisting crepe yarns, either silk, cotton, rayon, or wool. It is pointed out that wet-twist tinted rayon yarn can be produced on this machine without extra processing in the dye house, since the tint may be applied in the water trough. The wet-twisting is intended to render subsequent twist-setting operations unnecessary.



Self-Cleaning Humidifier Nozzle

THE self-cleaning humidifier nozzle recently announced by the American Moistening Co., Providence, R. I., has several new features, the most important of which is the automatic self-cleaning mechanism. This new nozzle is designed for use in place of existing types and requires no change in fittings or connections. The water pressure acts upon a rubber diaphragm to reverse its normal position, thereby lifting the cleaning pin from the orifice channel. When the water pressure is relieved, the diaphragm assumes its natural position, thus forcing the cleaning pin into the orifice channel. The result is that all accumulated dirt and foreign matter is forced to the face of the orifice, where it is picked up by the water in transit. Another improvement is in the valve, which is designed to prevent any free or spent water from dripping from the nozzle after the water pressure is relieved or cut off.

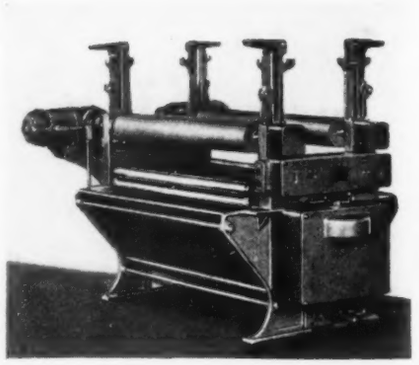


Tubular Steaming, Tentering, and Finishing Machine

STEAMING, tentering, and finishing of tubular-knit fabrics in one process is accomplished by means of a new type of equipment announced recently by Kasanof Tubular Machines, Inc., Brooklyn, N. Y. This machine is suitable for finishing fabrics composed of wool, cotton, silk, and those composed of synthetic yarns, as well as all combinations of yarns. The goods can be finished hard or soft; dull or bright; and in the original dimension as knitted, or shrunk or stretched exactly as desired.

It is stated that stripes in the fabric are finished absolutely straight; patterns are kept true and accurate; there is no distortion of designs, squares or circles; and the width of the fabric remains permanent. For this reason the cutters can depend on the patterns being in perfect alignment, permitting the cutting of any number of layers of cloth at one time, avoiding unnecessary waste in material and labor.

Other advantages cited for the new machine are that it assists in setting the dye and bringing out the brilliance of color in both yarn-dyed and piece-dyed fabrics; intensifies the whiteness of bleached goods; and enables pronounced savings in steam, labor, power, time, and floor space. Features of the equipment include its simplicity and durability; ease of operation; and improved design which permits finishing and tentering in one process under controlled conditions of steam pressure, temperature, and moisture content.



Constant-Speed Jig

DEVELOPMENT of an improved dye jig which gives constant cloth speed and constant tension has been announced recently by Rice, Barton & Fales, Inc., Worcester, Mass. Among the advantages cited for the new jig are increased production, reduced labor and power costs, and more uniform dyeings. Structural features include individual motor drive, electric constant-tension device, automatic reversing mechanism, oscillating device, and electric counter. Other features are centralized control convenient to operator, dynamic braking which prevents paying off of the cloth in the tank when jig is stopped, spreader attachment, and anti-friction bearings throughout.

To obtain constant speed each beam roll is directly connected to a motor by means of a flexible coupling. Motors are fitted with built-in spiral bevel-gear reduction units, running in oil and with all bearings anti-friction. This drive is self contained and eliminates all shafting, open gears, clutches, and belts. The manufacturer points out that with a constant speed every yard of cloth is submerged in the liquor the same length of time, thus giving more uniform dyeing and with less time for each end, and permitting the batching to be done more quickly.

Constant tension is obtained electrically, eliminating all friction straps, ropes, weights, etc. Tension may be changed (while the jig is running, if desired) from no tension to maximum tension, simply by turning a small handwheel. Once the tension is set, whether it be the minimum or maximum amount, it will remain as set until changed by the operator.

The jig is designed so that automatic reversal of the cloth may be had if desired. Automatic reversal is positive and is accomplished by means of a photo-electric cell. This automatic cloth reversal device makes it unnecessary for the operator to be at the machine when the end of the cloth is reached, thereby making it possible for the operator to attend more jigs.

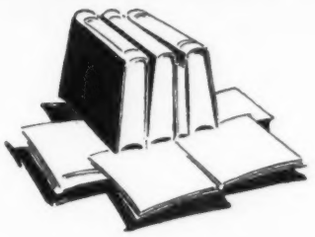
The oscillating device, which can be put into operation by turning a switch, is designed to prevent uneven dyeings due to seepage of dye liquor through the roll of cloth when the jig is stopped. It also eliminates the necessity of re-threading the cloth through the machine. An electric counter can be installed which will automatically stop the jig after a given number of ends.

NEW PUBLICATIONS

TEXTILE RESEARCH: A SURVEY OF PROGRESS; Compiled by U. S. Institute for Textile Research; Technology Press of M.I.T., Cambridge, Mass.; $2.50.

Dedicated to the memory of the late Dr. S. W. Stratton, first president of the U. S. Institute for Textile Research, this book represents a comprehensive and authoritative survey of the progress of research in all branches of the textile industry. Each chapter is written by a recognized expert in the particular field covered.

The scope of the book is indicated by a listing of the chapter-headings: Physical Testing; Chemical Analysis; Dye Chemistry and Application; Application of Optical Equipment; Textile Microbiology; Technology of Cotton Manufacture; Cotton Fiber Research; Dry-cleaning; Technology of Woolen and Worsted Manufacture; Wool Fiber Research; The Laundry Industry; Technology of Silk Manufacture; Silk Fiber Research; Textile Machinery Design; Technology of Rayon Manufacture; Rayon Fiber Research; Technology of Finishing; Technology of Bast Fiber Manufacture; Bast and Hard Fiber Research; Asbestos Textile Industry; Economic Research; Consumer Specifications for Textile Products.



DAVIDSON'S TEXTILE BLUE BOOK; Davidson Publishing Co., New York; Handy Edition, 1322 pp.; $5.00.

The "Blue Book" for 1932 lists 9,542 separate textile plants and 16,304 dealers. It is offered also in office edition, 1650 pages, at $7.50 and salesmen's edition, 500 pages, at $4.00. Looms, spindles, cards, combs and other machinery has been tabulated by States and shown in special tables.

The principal subdivisions of the contents follow: directory of cotton mills; woolen and worsted mills; silk mills; knitting mills; jute; linen and flax mills; Canadian mills; Mexican mills; dryers and finishers; mills with dye houses; commission merchants; converters; yarn dealers; raw and thrown silk and rayon firms; cotton dealers (both domestic and foreign); cotton warehouses; wool dealers; linter dealers; waste dealers and manufacturers; wholesale rag and remnant dealers; textile suppliers; new textile mills; classified directory of mills; textile associations.

Business Literature

Bearing Applications. Hyatt Roller Bearing Co., Newark, N. J. Bulletin No. 100. Dimensions, load rating tables and miscellaneous details of bearing design.

Trucks and Conveyors. Clark Tructractor Co., Battle Creek, Mich. Lifting trucks, tiering trucks, conveyor systems for loading and unloading freight cars, tractors and trailers are described briefly.

Welded Stainless Tubing. The Carpenter Steel Co., Reading Pa. Shapes, dimensions and physical properties of Carpenter stainless steel welded tubing. Working instructions, including methods of bending, welding, annealing, soldering and polishing, are given.

V-Belt Drives. The Gates Rubber Co., Denver, Colo. Complete engineering data on "Vulco" V-flat drives, including horsepower ratings, methods of designing drives and sheave groove dimensions.

Laboratory Tests. United States Testing Co., Inc., Hoboken, N. J. Price list of physical and chemical tests, listed alphabetically, including dyestuffs fabrics, yarns, oils and miscellaneous products.

"Shield-Arc" Welder. The Lincoln Electric Co. Cleveland. Description of new welding outfit with data showing its advantages.

BUSINESS NEWS

H. W. BUTTERWORTH & SONS CO. has announced with regret the resignations of Arthur C. Freeman, Sr., vice-president and member of the board of directors of the company and of Arthur C. Freeman, Jr., son of the vice-president. For many years Mr. Freeman and his son, together with Thomas W. France, have been identified with the New England office of H. W. Butterworth & Sons Co., located at Providence, R. I. This office will now be under the direction of Mr. France, with J. Ebert Butterworth, and DeHaven Butterworth making frequent trips into the territory from the home office in Philadelphia.

The WHITNEY MFG. CO., Hartford, Conn., announces that arrangements have been made with the BARBOUR STOCKWELL CO., Cambridge, Mass., to sell the complete line of Whitney silent and roller chains and sprockets in New England.

ENGINEER'S SPECIALTY CO., Chicago, Ill., has purchased the Columbia one-way, free-wheeling clutch business from the Columbia Industrial Machinery Co.

ANDREWS & GOODRICH have moved to larger quarters at 336 Adams St., Dorchester, Mass.

AMERIKA-INTERESSEN, INC., American unit of A. G. Fuer Amerika-Interessen which also operates in Berlin, Paris and London, has opened offices in the Chrysler Building, New York. The company, by making available to manufacturers of one country, on royalty or sales basis, devices, processes and patents which have proved successful in other countries, aids in jumping tariff barriers and in gaining a foreign market for ideas where export of products would be economically impossible.

JOS. H. BENNIS, vice-president and sales manager of New York & New Jersey Lubricant Co., has left for Europe, where he will contact his company's branches and sales connections to acquaint them with the recent improvements in non-fluid oils, particularly for textile machinery.

F. A. MERRICK, president, Westinghouse Electric & Mfg. Co., announced last month that his company is prepared to spend $1,260,000 for raw materials, supplies and development work.

SONOCO PRODUCTS CO., Hartsville, S. C., paper cones, tubes, spools and specialities, has taken over the building in Brantford, Ont., formerly tenanted by the defunct Niagara Silk Co., and will open a Canadian branch plant therein, employing 40 men at the start. P. L. McCall, of the parent company, will be manager of the new Canadian branch.

THE COOLING & AIR CONDITIONING CORP., founded by and until recently, partly owned by the B. F. STURTEVANT CO., is now a completely owned Sturtevant subsidiary, to be incorporated under the laws of Massachusetts. The name of the corporation will be changed to STURTEVANT-COOLING & AIR CONDITIONING CO., with its headquarters at Hyde Park, Boston, Mass. E. B. Freeman is president, B. S. Foss, treasurer, and H. R. Sewell, vice-president and general manager.

C. E. EWING, for the last 15 months North Carolina representative of the Fairbanks-Morse Co., with headquarters at Greensboro, N. C., has been transferred to the Maryland territory, with headquarters at Baltimore. A. R. Downer, Gordonsville, Fla., has succeeded him in North Carolina.

CINCINNATI MAILING DEVICE CO., Cincinnati, Ohio, manufacturers of cylindrical fiber cans, mailing tubes and cases, and paper winding cores has announced that after Nov. 1, 1932, the company name will be the Cin-Made Corp. There will be no change in product or organization.

ROBERT GAIR CO., INC., paperboard and paperboard products, moved its executive and New York City sales offices to the new Commerce Building, 155 East 44th Street, on Nov. 1.

DURIRON CO., INC., Dayton, Ohio, has appointed W. H. Scott general sales manager, succeeding T. D. Slingman, Jr., resigned. Mr. Scott has been with the company for 13 years.

WILLCOX & GIBBS SEWING MACHINE CO., New York, announces the appointment of John A. Curtis, as manager of its Newark, N. J., office. Mr. Curtis has been identified with the Newark office for more than 10 years.

PEARL RIVER VALLEY LUMBER CO., Canton, Miss., specializing in hardwood mill accessories, has apointed James A. Greer, of Greenville, S. C., as sales representative in the Southeast.

VEEDER-ROOT, INC., Hartford, Conn., manufacturers of counting devices for industrial equipment, have opened southern sales offices in the Woodside Building, Greenville, S. C., in charge of Arthur E. Kallinich, field sales manager.

GOSSETT MACHINE WORKS, Gastonia, N. C., have appointed J. O. Edwards, formerly superintendent of the Rhodhiss (N. C.) Mills Co., to represent them, calling on textile mills throughout the Southeastern States.

TEXTILE WORLD'S

Cotton Digest

GEORGE SLOAN did not mince words at the Cotton-Textile Institute meeting last month. He was as unsparing in his warning to those who refuse to cooperate, as he was in his praise of those who have produced the brilliant statistical record of the last three years.

He struck at the heart of the textile problem when he said that the sale of tremendous volume of cotton goods in August at little or no profit revealed an inherent weakness in the industry, and that it threw emphasis "not upon how many yards are actually sold and the relation of production to sales but upon how many yards can be profitably offered for sale and justifiably manufactured."

There can be no misunderstanding of this statement: "If certain elements within our industry continue to show an unwillingness to cooperate . . . . it is inevitable that some way will be found to bring about a more uniformly moderate work-week and a more general confinement of production to daylight operation." Mr. Sloan made it clear that he believed the job should be done through voluntary action, and not through Government control, but he warned that, failing industry-wide support, that job "is going to be done for us—and not nearly as well done as we ourselves can do it."

Such frank talk is good for the soul—and for the pocket-book.

To Consider Night-Work Policy

The board of directors of The Cotton-Textile Institute, including the executive committee, will meet in Spartanburg, S. C., Nov. 15, to discuss and decide whether the policy of discontinuing night employment of women and minors is to be preserved for the industry after Dec. 1. At the meeting of the Institute's board in New York, Oct. 19, it was recognized that the cotton manufacturing industry is confronted with a serious emergency in the possible break-down in the voluntary support of the night-work policy. At that time the board of directors unanimously adopted a resolution strongly recommending that all manufacturers and selling agents persist in the continued observance of the policy in order to permit further effort to re-establish its adherence by 80% or more of the print cloth and narrow sheetings groups prior to Dec. 1. In the same resolution, the Spartanburg meeting was fixed for Nov. 15.

Although conformity to the policy had been extended to embrace 88% of the industry, in recent months there have been departures from the policy in the above-named groups to such an extent as to threaten its abandonment.

In commenting on the situation, President George A. Sloan stated that "it seems unthinkable that a policy of such far-reaching significance . . . . may face abandonment because of insufficient cooperation."

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Perversity of Cotton

"The outstanding feature of the last two years has been the renewed evidence of the unlimited capacity of the American cotton crop to falsify all predictions and do the exact opposite of what it did before," says John A. Todd, noted English cotton authority, in a bulletin of the Association of Cotton Textile Merchants of New York.

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Production Increased in September—Stocks Down

Further increases in spinning activity were reported for September by the Bureau of the Census, but in spite of this greater production, mill stocks of cotton goods declined from 209,407,000 yd. on Sept. 1, to 160,121,000 yd. on Sept. 30. These figures, released by The Association of Cotton Textile Merchants of New York, represent a new low record and were less than three weeks of current production. September production and sales figures cover a period of five weeks. Billings for the month were 334,242,000 yd., or 117.3% of production, while sales were 292,410,000 yd., or 102.6% of production. September production amounted to 284,956,000 yd. Unfilled orders totalled 444,028,000 yd., a greater backlog than on the same date in 1929, when the figure was only 438,952,000 yd. . . . September figures on spinning activity showed operation at the rate of 94.6% of single shift capacity, as compared with 72.4% for August, and 51.5% for July.

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Opposes Discount Increase

Opposition to any increases in the discounts on sales of wash goods was voiced by the executive committee of the Wash Goods Group of the Textile Converters Association in a letter sent to the board of directors of that organization, Oct. 22.

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Jacques Bramhall Joins Iselin-Jefferson

The resignation of Jacques Bramhall as vice-president of Amory, Browne & Co., Inc., and his admission as a member of the firm of Iselin-Jefferson Co., effective Nov. 1, was one of the most important changes in the Worth Street district in some time. His wide experience in merchandising cotton goods, including a period of 18 years with Amory, Browne & Co., definitely places Mr. Bramhall as one of the leading merchants in the field. Several executives made the transfer with Mr. Bramhall. These men include the following: A. D. Griffiths, J. T. Welding, Harry Tappan, J. A. Pentz, M. M. Panton, A. W. Petrussa and C. O. Austin.

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Cotton Cloth Exports Up on Yardage Basis

In connection with item published in these columns recently showing decline in foreign trade in textile manufactures during the first six months of 1932 as against the same period of the three preceeding years, Hiram T. Nones of the Department of Commerce points out that figures on total value, although technically correct, do not give the true perspective.

For example, while exports of cotton fabrics the first half of this year showed a drop of two-thirds from the same period of 1929, by dollar volume, the actual shipments of cloth, in yardage, were only 24% under 1929. Comparing cotton cloth exports for the first six months of 1932 with the same period in 1931, there was an 18½% decline in value but in reality an increase of 13¼% in square yards.

Cotton Week May 15-20

The week of May 15 to 20, 1933, has been designated for the third annual observance of National Cotton Week, it has been announced by George A. Sloan, president of the Cotton-Textile Institute. This date was selected after expressions from a number of representative retailers in various parts of the country, that the middle of May had proved to be not alone well-timed for the event, but also offered no end-of-month inventory complications.

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S.T.A. Division Meets

The Associate Members Division of the Southern Textile Association, composed of salesmen and others allied with the textile industry, held a meeting in Greenville, S. C., Oct. 20. L. W. Thomason, southern agent of the N. Y. & N. J. Lubricant Co., chairman of the division, presided at the dinner. Impromptu talks were made by Henry G. Lord, president of the Bragdon, Lord & Nagle Co., Division of McGraw-Hill Publishing Co., New York, N. Y., and T. C. Hazard, manager of the textile division of the Taylor Instrument Cos., Rochester, N. Y. About 75 salesmen and exhibitors at the Southern Textile Show were present.

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Long Draft Discussed

Spinning problems were discussed at the fall meeting of the Eastern Carolina Division of the Southern Textile Association, held in Henderson, N. C., Oct. 7. Long draft systems were considered in the morning session which was conducted by D. F. Lanier, superintendent, Oxford (N. C.) Cotton Mills.

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Whelan Joins Erwin Yarn Co.

Joseph A. Whelan, who was the New York representative of Cannon Mills for many years and more recently with Textiles, Inc., has become associated with the Erwin Yarn Co., 40 Worth Street, New York. Mr. Whelan will devote his time principally to the distribution of combed and carded knitting yarns, a trade upon which he has specialized for the last 12 years.

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Cotton Price Comparisons

The following are prices of key items in the cotton industry:

	Nov 1	Oct. 1	Nov. 1 1931	Nov. 1 1930
Spot Cotton, N. Y.	6.10	7.05	6.70	11.15
Ditto, high previous month	7.15	9.00	6.95	11.65
Ditto, low previous month	6.15	6.80	5.80	10.15
Peeler Comber	6¼c	7c	5¼c	9¼c
White Spooler Waste	4¾c	4¾c	4¼c	8¼c
10s frame spun yarn	14¾c	15¼c	14¼c	20¼c
10s/2 carded skeins	14¼c	15¼c	14¼c	21c
20s/2 carded peeler warps	16c	18¼c	17¼c	23c
60s/2 combed peeler warps	45c	47c	43c	56¼c
60s/2 mercerized cones	60c	60c	57c	73c
37-in., 3-yd. drill	5¼c	5¼c	5c	7¼c
38½-in. 64x60s	3¼c	4c	3¼c	5¼c
36-in. 4-yd. 56x60s	4¼c	4¼c	4¼c	6¼c
Denim, 2.20s	10¼c	10¼c	9¼c	8c

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Cotton Mill News

La Fayette (Ala.) Mill Co. has been transferred by Utica Cotton Mill interests to the Avondale Mills.

Talledega (Ala.) Cotton Factory is doubling its capacity and adding 60 more operatives. Two Foster winders have been installed.

Quinebaug Co., Danielson, Conn., and Wauregan (Conn.) Co., two long-established cotton mills, will merge. J. Arthur Atwood, president of both companies, declares two-thirds of the stockholders have approved the plan. The new company will function as Wauregan-Quinebaug Mills, Inc.

Callaway Mills, La Grange, Ga., increased wages by 10% on Oct. 10.

Lane Cotton Mills, New Orleans, La., have completed the construction necessary to double their capacity. The plant now operates 60,000 spindles and 2,600 looms. The dyeing and finishing department is complete and shrinking equipment has been installed.

Magnolia (Miss.) Cotton Mills have resumed operations after being shut down since June, 1929. The plant is now owned by J. W. Sanders, Inc., of Jackson, and F. W. Dean is the superintendent.

Nashua (N. H.) Mfg. Co. has purchased the Somersworth (N. H.) mill of the Dwight Mfg. Co. for $250,000 with the approval of Dwight stockholders. Inventory, contracts and orders have also been taken over. The Somersworth mill produces sheets, pillow-cases and wide sheetings. The Dwight company has sold its property in Chicopee, Mass., to Raphael Sagalyn of Springfield, for rental to small diversified industries. The Southern plant of the company is not affected.

Alexander Mfg. Co., Forest City, N. C., has been taken under control by the Erlanger interests, and J. M. Gamewell, general manager of the Erlanger group in North Carolina with headquarters at Lexington, N. C., has been elected president.

Boger & Crawford, which recently installed additional 2,000 spindles at Lincolnton, N. C., has placed an order for a duplicate of the installation, which has been in operation for only a month. The company is adding quillers and coning machinery to its mercerizing plant in Philadelphia which has been and still is operating at capacity.

Rocky Mount (N. C.) Mills are understood to be about to replace their entire spinning equipment with long draft spinning from the H. & B. American Machine Co.

Wennonah Cotton Mills Co., Lexington, N. C., have placed orders with H. & B. American Machine Co. for 16,000 spindles of long draft to replace a like number of old spindles.

Highland Park Mfg. Co., Rock Hill, S. C., is about to benefit from a $100,000 modernization program with prospect of reopening Jan. 1, 1933. Additional picking and carding machinery is to be installed as well as improved dyeing and slashing equipment, and 400 Draper looms are replacing the old gingham looms.

Cannon Mills Co., York, S. C., is installing new spinning frames, to replace 3,000 spindles.

Standard Braids, Inc., Providence, R. I., has awarded general contract to the C. I. Bigney Const. Co., 184 Washington St., Providence, for 1 story brick addition to its plant on Bucklin St., 35x100 ft.

Blackstone plant of the Lonsdale Co., North Smithfield, R. I., was closed indefinitely on Oct. 29.

Pendleton Mfg. Co., La France, S. C., has awarded contract to C. M. Guest & Sons, Anderson, S. C., for the construction of a boiler room, 42 x 42 ft., to accommodate one 300-hp. boiler, with room for another.

Amoskeag Co., a holding company of Amoskeag Mfg. Co., Manchester, N. H., reports income for year ended June 30 of $726,102, which was nearly $200,000 less than the company received in previous year.

Bibb Mfg. Co., Macon, Ga., shows net income after charges of $133,472, for year ended Aug. 31 equal to 67c. a share on outstanding common.

Berkshire Fine Spinning Associates, Inc., Boston, Mass., showed a loss of $1,353,139, after charges, for year ended Sept. 30, compared with previous year's loss of $1,486,616.

Pee Dee Mfg. Co., Rockingham, N. C., shows small profit for fiscal year.

TEXTILE WORLD'S

Wool Digest

WE HAVE been shopping for a suit of clothes lately — rather casually, it is true, but with an inclination to buy. We haven't bought yet. The reason? . . . . Everything seems too cheap. That may sound strange, but it's true.

First, we investigated the much-advertised sales at $17.50, $18.75, and there-abouts. The suits were probably all right, but we just didn't like them. So we went to our pet store where, in the good old days we bought a standard model at $50. (And we were always satisfied with the deal.) The first thing the salesman tried to do was to interest us in a suit, with two pairs of trousers, at $25. There again, the suit was probably all right but, again, we just didn't like it. We backed out gracefully—and haven't done any shopping since.

Undoubtedly this store still has suits at $30, $35, and even at the fabulous price of $50. But the point is, it didn't show them, either in the windows or through the salesman. Now, we're as canny as the next man, and don't like to pay over the market. At the same time, we don't like the quality represented by the "market" today. So we don't buy.

There must be other men in the same fix—men who, while counting their pennies, demand quality of fabric and workmanship; men who could be inveigled into a $35 purchase, let's say . . . . But just now the $17.50's are having their day.

Why Give Away Cheap Wool?

Spring lines of men's suitings have been priced by leading mills without much effort being made to push for business. Prices are generally at the advanced fall level reached early in September. Market economists believe higher figures are justified, but buyers, with Democratic tariff tinkering in the air, are cautious despite the fact that tariff changes by either party are unlikely to be made soon enough to affect the next spring season. Of course some mills own relatively cheap wool but conservative managers argue that this advantage should not be given away. Women's wear has improved to the point where men's wear looms are turning to feed its needs. A good season may lie ahead.

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"Yours Most Faithfully—Wool"

Eavenson & Levering Co., Camden, N. J., is offering a consumer booklet entitled "Yours Most Faithfully—WOOL." It is a successor to the "Wish It With Wool" Christmas campaign of last year and has the same purpose in mind. It is an excellent presentation, largely in pictures, of the use and care of wool goods. Cooperation of the trade in effective distribution of these booklets is hoped for.

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Cannon Mills Selling For Leaksville Woolen

The Leaksville Woolen Mills, Inc., manufacturers of all-wool and part-wool blankets, with plants at Spray and Homestead, N. C., have appointed Cannon Mills as exclusive selling agents, effective Dec. 1. John H. Workman will handle the Leaksville account.

•

Unsold Wool Supply About 5-Months' Need

Prospect of light carry-over at the end of the current wool season next March is one of the conclusions to be drawn from the report lately issued by the Boston Wool Trade Association showing unsold wool stocks in hands of dealers and the National Wool Marketing Corp. on Oct. 15, 1932, to be 147,951,102 lb. against 189,670,063 lb., 12 months before. The unknown factor is the extent of mill stocks of wool which may in some cases be large. If the reported supply alone was to be counted on it would not last five months on current basis of consumption but there may be as much as two months supply still to reach dealers before end of the season.

Wool dealers believe the piece goods market has foundation for absolute stability if sellers of fabrics will grasp it. It will be interesting to watch the development of the one major textile market which is not burdened by superfluity of raw material.

Following is the local trade association's compilation of stocks:

	Oct. 15, 1932 Pounds	Oct. 15, 1931 Pounds
DOMESTIC		
Territory, California, Texas (in grease)	109,022,263	151,781,937
Fleeces (grown East of the Mississippi river but including Minnesota, Iowa and Missouri)	21,673,487	20,928,423
Pulled (in grease)	7,338,199	6,348,752
Scoured	7,559,190	6,660,693
Total Domestic	145,593,139	185,719,805
FOREIGN		
In and out of bond, merino and fine medium crossbreds (not including low crossbreds which are used largely for carpet purposes)	2,357,963	3,950,258
Total wool stocks reported	147,951,102	189,670,063

•

Wool, Hair or Fur; Which from the Rabbit?

Mystery attaches to the tariff position of the rabbits' coat. Angora rabbit "wool" has been assessed as sheep's wool at 34c; rabbit "fur" for hatters' use has come in free; rabbit "hair" is also said to be undutiable. Increased popularity attaches to the use of these fibers in women's wear and the use of the hatters' fur type is an economical way of adding novelty to fabrics. Dresses made from fabrics with generous sprinkling of sparkling hairs range down from $15.00 or more to the popular $5.00 level. Clearer definition of wool, hair and fur is clearly needed not only for tariff administration but for trade description.

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Cotton-Wool Cassimeres

Two regrettable errors occurred in the printing of George R. Stevens' article "Cotton-Wool Cassimeres," page 80 October issue. The end of the first sentence in the fourth paragraph and also the end of the first sentence in the fifth paragraph should in each case read "one-half-blood grade," rather than "one-quarter-blood grade."

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The 7,250 Tons of Mohair Have Been Delivered

Delivery of 14,500,000 lb. of mohair, the largest accumulation of fleece ever sold at one time in this country, was completed early last month, according to H. B. Embach, general manager of the National Wool Marketing Corp. The last boat load arrived in Boston from Philadelphia around Oct. 1 and the remainder of the huge shipment is being

sent from Boston warehouses to the Sanford Mills and Goodall Worsted Co., Sanford, Me., joint purchasers of the mohair. The work, which was in progress for more than six weeks, gave employment to more than 200 men, and moved between 500 and 600 freight cars. This huge mohair sale, in the opinion of Mr. Embach, was an important contributing factor to the renewal of activity in wool circles. The Sanford Mills is offering new qualities of velvets on which large business is expected.

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Wool Carpets and Rugs Census

The Bureau of the Census announces that, according to a preliminary tabulation of data collected in the Census of Manufacturers taken in 1932, the total value (at f.o.b. factory prices) of wool carpets and rugs produced in the United States in 1931 amounted to $86,402,725, a decrease of 50.4% as compared with $174,286,275 reported for 1929, the last preceding census year. The total for 1931 is made up as follows: Carpets 13,257,403 sq.yd., valued at $25,192,053; rugs made of sewed strips, 1,338,425 sq.yd., $4,007,346; rugs woven whole, 29,447,615 sq.yd., $57,203,326. Decrease from 1929 in square yards produced is 40%. All classes decreased except sheen type rugs woven whole.

Statistics for 1931, with comparative figures for 1929, are given in the following tables. The figures for 1931 are preliminary and subject to revision:

	1931	1929
Number of establishments	61	67
Wage earners (average for the year)	22,903	32,623
Wages	$24,109,373	$40,014,207
Cost of materials, fuel, and purchased electric energy	$38,876,490	$86,650,892
Products, total value	$88,204,169	$176,915,364
Carpets and rugs	$86,361,423	$174,067,965
Other products and receipts for contract work	$1,842,746	$2,847,399
Value added by manufacture	$49,327,679	$90,264,472

PRODUCTION BY KIND IN SQUARE YARDS

	1931	1929
Wool carpets and rugs made in all industries, total	44,043,443	73,410,821
Carpets, total	13,257,403	27,385,080
Rugs made of sewed strips, total	1,338,425	3,719,990
Rugs woven whole, total	29,447,615	42,305,751
Sheen type, total	2,454,786	1,822,196
Other than sheen type, total	26,992,829	40,483,555
Axminster	18,564,526	20,654,419
Wilton	1,146,201	3,437,214
Tapestry velvet	3,063,491	7,536,088
Tapestry Brussels	778,367	3,453,194
Chenille	245,405	546,340

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Nashua Concentrates on Patented Blankets

To fill the demand for warmth without weight in blankets, the Nashua (N.H.) Mfg. Co., has announced that it will concentrate on the marketing of its Sworma and Nasram blankets of silk and wool construction. The U. S. Patent office has issued to the company patent number 1,885,015 on these silk warp, wool filled blankets.

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Price Trends in Wool

The following are prices of key items in the wool industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

	Nov. 1	Oct. 1	Nov. 1 1931	Nov. 1 1930
Fine and fine med. territory	$0.43	$0.45	$0.55	$0.70
Ohio ⅜s	.21	.23	.23½	.29½
Tops, fine, 64-66s	.68	.68	.81½	.99
Average ⅜s	.56	.56	.62½	.79
High ¼	.53	.52½	.54	.71
Noils, fine	.35	.35	.34	.53½
2-40s 60s wstd yarn	1.04	1.09	1.20	1.42½
3192 serge	1.27½	1.27½	1.68¾	1.96½

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Bottomley Wins Philadelphia Golf

Philadelphia Wool & Textile Golf Association held a tournament meeting Oct. 13 at the Pine Valley Country Club, when 40 members were on the course, playing for prizes. Gordon Bottomley of Howland Croft turned in the best low net, his card showing a 90 gross, 15 handicap, with a 75 net; Woodie Pratt won second prize; H. H. Benedict, third; J. Y. Floyd, fourth, and H. L. Hidge, fifth. A dinner followed the golf matches.

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Wool Mill News

AMERICAN WOOLEN Co. has sold its Whitestone Mill, Danielson, Conn., to Michigan interests, which will operate as the Whitestone Rubber Co.

SPRINGVILLE MFG. Co., Rockville, Conn., a division of the HOCKANUM MILLS Co., has started construction of a one-story addition to its finishing room, as well as a separate addition in the rear of the plant.

AMERICAN WOOLEN Co. prepared to transfer its blanket manufacturing from Lowell to Newport and Hartland, Me., when a strike threatened to check production at a time when deliveries were needed.

HIGHLAND PARK (Mich.) WOOLEN MILL, of Ford Motor Co., has sold its equipment to W. A. Schuster and W. L. Hayward as reported last month. This includes 80 C. & K. automatic looms and Johnson & Bassett mules. It is understood that the largest part of this machinery will go to the Millbury Woolen Co., Franklin, Mass., and the balance to Schuster and Hayward Woolen Mills, East Douglas.

TEXAS MOHAIR & WOOLEN MILLS, INC., New Braunfels, Tex., recently organized with capital of $104,000 by H. A. Wagenfuehr, New Braunfels, and associates, are perfecting plans for proposed new local mill for manufacture of mohair fabrics. Initial plant will cost over $75,000, with machinery.

RIVERSIDE MILL of AMERICAN WOOLEN Co., Lebanon, N. H., has been purchased by Wm. H. Putnam, who operated it for the big company for many years. It is being put in shape to lease to any interested manufacturer. The former owners removed most of the machinery.

BOTANY CONSOLIDATED MILLS' receivers have recommended abandonment of the GARFIELD (N. J.) WORSTED MILLS. The court will pass on the matter early this month.

MERRILL (Wis.) WOOLEN MILLS Co. plans rebuilding of portion of mill, recently destroyed by fire, with loss estimated at close to $20,000, including equipment.

EMPIRE WORSTED MILLS, INC., Jamestown, N. Y., have been organized with a capital of $1,050,000, to take over and succeed to the company of same name, with local mill. Incorporators of the new company include J. Russell Rogerson, Hjalmar Swanson and Crawford N. Barger, all of Jamestown. Stockholders authorized the reorganization to avoid a receivership as a settlement with creditors had been made.

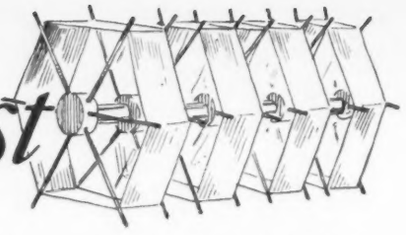
JAMES BUTLER WOOLEN MILL, Strathroy, Ont., Canada, has completed the installation of additional machinery. The recently completed addition to the building has increased the size of the mill to four times its original size.

DOMINION WOOLENS & WORSTEDS, LTD., have added a central laboratory to their organization. It is located in Hespelar, Ont., Canada, and has been organized by the consulting chemical engineer of the company, Dr. F. Zeidler, F.C.I.C. The work will be superintended by him.

NORTHERN TEXTILES, LTD., Owen Sound, Ont., Canada, closed down for several months, is considering moving to Alberta, as soon as the arrangements now under way with a certain town can be completed. The mill makes blankets and heavy woolens.

TEXTILE WORLD'S

Silk Digest



THOSE who recognize the need for intensive study of the fundamental bases of textile distribution will be encouraged by the announcement of the formation of a Silk and Rayon Research Bureau to undertake such a marketing study in those two branches of the industry. The Textile Foundation, which is collaborating in this work and is contributing to its financial support, has sponsored similar projects in the cotton and wool divisions. Thus, the research has now been extended to cover the four major fibers.

Ramsay Peugnet, secretary of the Silk Association of America and director of the newly-organized bureau, has urged the cooperation of the entire trade in furnishing prompt information in response to communications which will be issued by the bureau from time to time. Certainly, without that cooperation the new enterprise can realize only a part of its possibilities.

Raw Silk Subject To Outside Influences

Although raw silk price fluctuations were within a narrow range for the month of October, the general trend was downward and November opened with prices lower than they have been since August. There is little in the immediate silk situation, taken by itself, that is expected to have much affect on values although there are several developments in the air—such as outlined in the address of Paolino Gerli to hosiery executives, which will be found elsewhere in this issue—that must be taken into consideration in formulating any long-range view.

Political happenings in Japan, the course of the yen and general business conditions in the United States should be the dominating factors in silk prices. Several economists outside the textile field believe that Japan's position in international affairs has been affected to a greater extent by the decline in value of silk exports than is generally realized. If this is the case, silk may become the football of Japanese politicians and government interference more drastic. In this country it has been noticeable that quotations on the silk exchange have been very sensitive to the stock market. This relation is expected to continue until Japanese developments become of paramount importance.

•

Active Fight Against Design Piracy

Greater activity in combating the evil of design piracy has been apparent of late. While the trade believes that the eventual solution lies in legislation, every effort is being put forth to take advantage of existing means of protecting designs until such time as a suitable law can be passed. Despite the obvious drawbacks of the present Design Patent Law, it represents the best means available at present for the prevention of piracy. Consequently, considerable importance attaches to the fact that the process of securing a design patent has recently been speeded up, and that many of the better fabric houses expect to take advantage of the law.

In announcing that the Silk Association of America will give information on the preparation of applications and drawings to those who desire, Sol. C. Moss, president of the Design Protection Association, states:

"Through the cooperation of the Patent Office, which is endeavoring in so far as possible to eliminate detail and to speed up the searching of patent files, the issuance of a patent number has in most instances been considerably expedited this fall. Three weeks at least still elapse, it is true, between the time that the application is allowed and the time when the patent is finally issued, necessitated by the publication of the drawing, as required by law, in the *Official Gazette*. This delay is, however, one over which the Patent Office has, at the present time, little control. The Silk Association is making its contribution towards speeding up the routine by checking applications for the trade, so that they will not be delayed through errors or omissions in the letters patent.

"Members of the trade wishing to avail themselves of the services of the Silk Association should send to the association their original design from which will be made the black and white drawing required by the Patent Office.

When the application is allowed it should not be assumed that manufacturers can go ahead with the printing of their patterns and receive the protection of the patent laws, Mr. Moss pointed out. Designs should not be offered for sale until the Patent Number is received.

As previously announced, the Design Registration Bureau has been reopened. In explaining the move, Mr. Moss states:

"Continuance of the Design Bureau has been decided upon to meet certain exigencies which have recently arisen, and to forestall by every possible means the activities of the design pirate. The industry is being urged to use the United States Patent Office in so far as it is possible to do so. Certain designs, however, do not meet the technical requirements of the Patent Office for originality, and yet would not give the appearance of similarly when applied to a fabric."

•

$6 Transcontinental Freight Rate to Continue

The rate of $6 per 100 lb. for raw silk shipped from the Pacific coast to Eastern points will continue in effect for the year 1933. Prior to 1932 the rate was $9 per 100 lb., but it was found that competition with water transportation through the Panama Canal cut in on rail freight and the new rate of $6 was put into effect for 1932. Under the new rate, the railroads have reclaimed a considerable amount of business, 68% of the total silk imports being moved by rail in September as against 30% by water; the remainder coming from Europe.

•

Japan Seeks New Silk Uses

It is reported that technicians in Japan have been working on the development of tire cord yarns of silk to replace cotton. It is understood that those who have experimented along this line in the United States have found that cotton is the best suited mechanically of any of the fibers for tire production.

Another suggestion made in Japan is that silk fabrics be used for the manufacture of bank notes. If such a plan had been followed in some of the European countries during the post-war collapse the currency would have been worth more as possible dress material than as money.

•

Abolition of Night Work Advocated at Paterson

A resolution favoring the abolition of night work throughout the silk industry and an impost on raw silk to provide a fund for the betterment of conditions has been passed by Division B of the Paterson Silk Manufacturers' Association. Max M. Baker, secretary, states

that the commission manufacturers taking the action represent 6,000 looms and that other sections have commented favorably. It was resolved:

"That it is essential to the welfare of the silk industry that night work be abolished throughout the industry, that it would result in unquestioned benefit to the manufacturer as well as labor, and this association hereby recommends to the Silk Association of America that every effort be made to accomplish this result."

"That this association go on record as favoring the imposition of an impost or levy of a stipulated amount per pound on each pound of raw silk first sold in this country, the proceeds to be used under the auspices of the Silk Association for the betterment of the industry."

•

Throwster Institute Active Investigating Claims

The increase in volume of business during the last few months has brought to the forefront the activities of the Throwsters Research Institute in dealing with claims. Dean Hill, executive secretary of the institute, calls attention to the fact that more and more throwsters are availing themselves of the facilities offered by the institute to register claims and avoid duplication.

The detailed records of defects and complaints maintained by the institute also have considerable value as a source of information concerning the causes and means of preventing defects in throwing. Technical investigation by the institute laboratory has been used in a growing number of cases and in some instances of claims the weaver and throwster involved have asked the institute to act as arbitrator. One of the policies involved is that claims should be settled speedily and not allowed to drag out to the detriment of both parties.

•

Cheney Reorganization Goes Forward

Reorganization of Cheney Bros., South Manchester, Conn., has practically been completed, both in the financial set-up and in manufacturing procedure. D. P. Carey, who left Belding Hemingway Co. a little over a year ago to become chairman of the manufacturing committee of Cheney Bros., recently tendered his resignation, stating that the reorganization of practices and methods had been completed with resultant economies and that, as the reason for his employment had ceased to exist, it was only proper that his services should terminate.

The financial program, prepared by committee consting of John F. Grimm, Morgan B. Brainard, Ward Cheney, Ralph T. Crane and Charles F. Mills, is designed to refinance outstanding 5% serial bonds which were about to mature and bank indebtedness, and make the earnings of the business available for the liquidation of these obligations. At a subsequent meeting of stockholders representing 90% of the outstanding common stock the vote was unanimous for the proposed plan. A new series of 5-year 5% bonds amounting to $2,734,000 and 27,340 shares of no par value preferred will be issued.

•

Italian Silk Production Declines 50%

Italian production of raw silk for the first six months of this year was 27,478,748 lb., as compared with 57,247,388 lb. for similar period in 1931, according to report received by U. S. Department of Commerce.

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Silk Price Tables

The following prices of key items reflect the downward trend in silk quotations:

	Nov. 1	Oct. 1	Nov. 1 1931	Nov. 1 1930
Crack XX 13/15 white 78%.....	$1.63	$1.83	$2.35	$2.55
Tram, 5 thd Japan 85%...	2.25	2.55	3.30	3.95
Crepe 3-4 thd 14½ 16 Bob.	1.85	2.10	2.30	2.85
60s-2, spun silk.....	2.85	2.85	3.45	3.65

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Wm. Skinner & Sons Organize Subsidiary

The Truhu Silk Co. has been organized as a subsidiary of Wm. Skinner & Sons to handle the uptown cutting-up and retail trades. Officers of the concern are: president, R. S. Kilborne, manager of women's wear sales for the Skinner organization; vice presidents, E. J. Morgan, who will act as sales manager, and Miss Esther Raup, who will handle promotion and styling; secretary, W. H. Hubbard, also secretary of the parent company. Offices of the new firm are located at 1450 Broadway.

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Silk Mill News

CYCAN SILK CO. has been formed in Middletown, Conn., by Alexander S. Cycan and Irving Cycan, who recently took over the former Burns Mfg. Co. mill at 100 Cooley Ave. Forty-four looms have been installed.

ARMSTRONG SILK CORP., New London, Conn., has purchased from the Belding-Heminway-Corticelli Silk Co., the mill at New London, which it has been operating under an option.

MILLER BROTHERS, INC., Paterson, N. J., have been organized with a capital of $100,000, to take over and operate the MILLER BROTHERS SILK CO., with local mill on Dale Ave.

HANNA SILK CO., Paterson, N. J., care of David C. Kurlantzick, 136 Washington St., Paterson, attorney, has been organized with capital of $125,000, to operate a local silk mill. The incorporators include R. Moore and David Green, Paterson.

SHELDON SILK CO., Paterson, N. J., has been formed by John Geiseler and Charles K. Barton, 934 East Twenty-second St., Paterson, with capital of $50,000, to operate a broadsilk mill.

JEROME SILK CORP., Paterson, N. J., has been chartered with capital of $100,000 by I. Rosenbloom, Paterson and associates, to operate a local broadsilk mill. New company is represented by Harry Joelson, 152 Market St., Paterson, an attorney.

RIEBACH & MANDELL CO., INC., 1410 Broadway, New York, is perfecting plans for establishment of a new silk yarn mill at Atmore, Ala., where property has been acquired. Initial unit is reported to cost over $70,000, with machinery. It will employ 150 persons.

SIDNEY BLUMENTHAL & CO., INC., Shelton, Conn., report for the three months ended Sept. 30, 1932, a net loss of $158,380, after depreciation of $91,939, compared with a net profit of $242,596 in the same 1931 period, after depreciation of $92,226.

CENTURY RIBBON MILLS, INC., New York, including subsidiary, reports for quarter ended Sept. 30, 1932, net profit of $35,434 after charges and taxes compared with a net loss of $57,434 in the preceding quarter.

ROSETO (Pa.) CO., operating 104 looms on broadsilks, was sold at auction on the premises on Nov. 10 by order of the receivers.

FRANK IX & SONS, INC., Charlottesville, Va., have awarded general contract to the Harrisburg (Va.) Building & Supply Co., for a new one-story addition to mill, designed to increase capacity about 50%, reported to cost over $40,000, with equipment.

The M. E. BINZ SILK CO., Danville, Que., Canada, has acquired a building in which it will install machinery and equipment for production of broadsilks.

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TEXTILE WORLD'S

Rayon Digest

SLOWLY but surely exports of rayon yarn from this country are increasing. True, the total for the first six months of this year was only 376,054 lb.—a relatively small quantity when compared with domestic production—but it represented almost a 150% increase over the same period of last year, and a 300% increase over the first half of 1929. The advance has continued — in fact has been accelerated — since June. July exports, in pounds, were double those of July, 1931; August exports were three times as great as the corresponding month last year.

In view of our oft-expressed opinion that the development of foreign outlets is an extremely important factor in such industries as those producing dyestuffs, rayon, and other synthetic materials, this trend appeals to us as exceedingly interesting.

Complications continually arise in the export field for rayon. The present activity of Japan is a case in point. But we do not believe that domestic producers can afford to be discouraged by such events; the goal is too desirable.

Popular Yarns Still Scarce

Despite the large production during October, the rayon stock situation is still tight in the wanted numbers, although a slight easing is expected before the end of the month. Manufacturers have endeavored to limit sales and shipments to the actual needs of their customers, with the result that the quantity of rayon moving through second hands has not been large. The situation is best illustrated by the experience of some mills which have been forced to use yarns other than they usually consume simply because they were unable to secure the desired delivery in the popular deniers.

One curious feature of the market is that, despite the strength of the yarn situation, prices for woven rayon fabrics have shown a tendency to ease, particularly French crepes and certain fancies. Analysis of the situation leads to the conclusion that the softening is confined to certain groups of fabrics and that poor end-of-season merchandising has been responsible. Some weavers apparently fought to get yarn and then proceded to weave fabrics the demand for which was already on the down grade. From the yarn standpoint such developments have no immediate significance and any slackening in demand from weavers has been made up by increased call from the knitters.

Shipments during November will be closely watched for some indication of the future trend, since any considerable increase in the number of calls to defer delivery will be taken as evidence that the flow of fabrics into the hands of ultimate consumers has slowed up and that a corresponding decrease in the number of new orders for yarn is to be expected. The first week in November developed nothing significant along this line and predictions were that shipments for the month would be in the neighborhood of 12-13,000,000 lb., or approximately the same as October.

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Production Off In Great Britain

Production of rayon yarn and waste in Great Britain during August amounted to 4,620,000 lb. against 5,710,000 lb. in July and 3,660,000 lb. in August of last year. The amount of rayon yarn and waste consumed during the month was 4,528,200 lb. against 5,634,200 lb. in July and 3,708,900 lb. in August, 1931.

The decrease in production can be mainly attributed to the fact that several large factories took their annual holidays during this month, the plants of some being closed down for a week or more.

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Velvet Used for Gloves, Shoes, Handbags

The appearance of formal evening gloves of transparent velvet at some of the New York department stores is but another illustration of the extent to which fabrics are being interchanged and imagination applied to the production of novelty style effects. The gloves are made in colors to match the costume. Perhaps they are designed for handling delicate situations!

Along the same line, the Paris office of Du Pont Style Service reports that the vogue of velvets has extended to such accessories as handbags and even shoes. Rayon passementerie ornaments are also said to be popular among the leading Paris dressmakers.

•

Great French Dressmakers Recognize Synthetic Yarns

Fabrics of synthetic yarns have stormed and taken the last stronghold of style conservatism as represented by the leading coutourieres of Paris. A revolutionary change has taken place, according to the Paris office of the Du Pont Style Service, in that the great dressmakers now publicly proclaim the style value of synthetic yarn fabrics where previously they were inclined to surpress the fact that they were making use of such fabrics.

This change in attitude toward rayon and acetate yarns is not due to the fact that their qualities were not known, reports the Style Service after a comprehensive analysis of the fall and winter collections of the haute couture in Paris, because even the most conservative houses have used them, although some denied the fact. The recent outstanding successes of both viscose rayon and acetate have given the more progressive manufacturers courage. Peau d'Ange indicated the extensive possibilities of acetate, and rayon fabrics of the Ribouldingue type had an instant following among the public. This was followed by the long list of crepe materials. The point is that leading manufacturers in France began to study all synthetic yarns from a new angle in order to produce novelties which might attract the public. After some of the houses had displayed new acetate and rayon materials and been impressed by the great public success of them, they flatly announced that they were made of synthetic yarn. The whole situation leads to the conclusion that the fashion world of Paris believes that a great and fruitful field for fabrics, that will attract the attention of the public, is to be found in various treatments of acetate and rayon and that the time has come to emphasize the fact that beautiful, durable and fashionable garments can be made of these yarns.

For a long while, the Service states, rayon and other synethetic yarn fabrics had staggered along under a handicap due to the fact that for many years, during the early stages of their development, they were not regarded as worthy of consideration by the haute couture. When, however, some striking materials began to be made of rayon and acetate yarns, they were found to have qualities that appealed to customers but still they were not admitted to be made of those materials. Take, for instance, the case of Flamenga which enjoyed for

a long time the favor of the haute couture and still the general public was told by the more conservative leaders that synthetic yarn materials were really "impossible."

The creation of the dull fabrics marked the turning point, the Service says. Some of the more progressive of the manufacturers saw in Peau d'Ange an opportunity to publicly proclaim the value of the material. It is now believed that the skill of the manufacturers will develop new constructions of these materials and that when the next collections are shown, there will be a still further acceptance of viscose rayon and acetate materials.

Practically all of the new fabrics had been mentioned in the United States. It is the trend which is important. Among the fabrics which have been emphasized by the haute couture, in addition to those already mentioned and which emphasize the new trend are Croquignol, Croquicloqui (Bamboula type); Croquemie (a goffered fabric with wide stripes); variations of the Ribouldingue type; a successful novelty known as Bamboula Peau d'Ange which is a crepe satin; Flamisol; new crepes such as Drolinette, Craqueline and Criquette; Crepe Agnes which is especially reserved for the dressmaker of that name; Crepe Rigolade; Charilaska (a kind of faconne Ribouldingue); numbers of dull crepes either 100% synthetic or half silk and half synthetic; Crepe Manuela, a great many velvets, among them being such fabrics as Matvelva, Velours Nabab, Velours Paysan, and Velours Raguzza (a plain surfaced velvet). In addition there are novel fabrics such as Pekin Frise, an acetate material showing very apparent stripes on a background of the same color; Piggy Satin; Satinsinellic and Jerseysatin.

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Industrial Rayon Has Third Quarter Loss

Net loss of $96,115 for the three months ended Sept. 30, after depreciation and interest charges, is reported by the Industrial Rayon Corp. This compares with a net profit of $333,109 for the same period in 1931. Net loss for the nine months ended Sept. 30, 1932, is given as $210,928, after depreciation and interest, as compared with net profit of $397,972 for the corresponding period in 1931.

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Tubize Chatillon Inaugurates Consumer Advertising

Advertising in a national consumer magazine, in addition to trade publications, features the market expansion program inaugurated by Tubize Chatillon Corp. on Oct. 30. The campaign is designed to aid hosiery and underwear manufacturers and retailers in the distribution of merchandise made from Chardonize dull luster yarns and, according to officials of the company, probably represents the first tangible recognition in advertising that the major percentage of all synthetic yarn is knitted into inexpensive apparel. The women's consumer medium chosen, the *American Weekly*, is distributed each Sunday with a number of newspapers and is stated to have the largest circulation among women in the world.

•

Italy's Rayon Exports Off 16%

Keen Japanese competition in the Oriental market, particularly China, was responsible for a drop of 16% in Italy's exports of rayon yarns for the first six months of this year as compared with 1931, according to the U. S. Department of Commerce. Exports were 22,056,779 lb. for the first six months and the total production 37,941,697 lb.; the latter comparing with production of 36,223,657 lb. for the similar period in 1931.

•

Sugar Cane Bagasse As Source of Cellulose

A report upon investigations that have been made on the suitability of sugar cane bagasse for the production of cellulose for rayon manufacture has been issued by the Department of Agriculture.

The reported alpha cellulose content of the product appears to be high, the copper content low, and other characteristics point to its suitability. At present the cost is out of line, but the report points out that the full possibilities of the process have not been exploited.

•

Rayon Production 100% for October

U. S. rayon production during the month of October was 100% of capacity as compared with 90% in September, according to the *Textile Organon*, published by the Tubize Chatillon Corp. The volume of rayon shipments in October showed little diminution from the high rates of September.

Regarding rayon prices for the near future, the publication states that it appears feasible that prices probably will not be raised before the first of the new year. With the current high rate of production and shipments, most rayon producers are probably able at least to break even, or even make a little money on their operations; the third quarter earnings statements of rayon producers need not reflect disagreement with this statement because the first five or six weeks of the third quarter was a very lean period for the producers as regards shipments and production.

•

Woolworth's 20c. Line

A new important outlet for women's full-sized rayon knit underwear developed at the end of July when the F. W. Woolworth stores added this line to their hitherto rather limited range of rayon underwear. The new merchandise sells at 20c., now the top price quoted by the Woolworth organization. The line comprises rayon mesh panties in flesh and peach and of flesh with bands of contrasting colors; the garment is of the yoke-up type, buttoning at the side; brassieres of rayon satin or rayon taffeta are offered at the same price.

•

Rayon Price Comparisons

The following are prices of pivotal rayon yarn numbers. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

Viscose Process	Nov. 1	Oct 1.	Nov. 1 1931	Nov. 1 1930
75 denier (18-30 fils)	$0.90	$0.90	$1.20	$1.56
100 denier (40 fils)	0.75	0.75	1.00	1.30
150 denier (40 fils)	0.60	0.60	0.75	1.00
Acetate Process				
150 denier	1.00	1.00	1.00	1.85
Cupra Process				
150 denier (112 fils)	.....	.....	.90	1.25
Nitro Process				
150 denier	0.65	0.65	0.75	0.95

•

New Products for British Celanese

Plans for the production of several new acetate products were announced by Dr. Henri Dreyfus, chairman of British Celanese, Ltd., at the annual meeting of the company, held in London, Oct. 26.

Yarns and fabrics made of Celanese artificial wool will be produced on a commercial scale in addition to a number of new yarns of various breaking strengths.

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TEXTILE WORLD'S

Knit Goods Digest

THE hosiery industry, at the time its representatives met in New York last month, was just on the verge of a toboggan, it was declared. But it was a perfectly normal toboggan—a seasonal decline in net shipments and orders booked which, as shown by a chart, has occurred at that time in every year from 1927 to date.

This was the moral drawn: Don't get scared when weekly orders diminish and shipments go down — and don't think destruction is facing you. Don't get panicky on prices. Also, on the way down, sit tight on the price structure—and demand will come back.

We have a feeling that some manufacturers went to the conference expecting the impossible—possibly anticipating a solution of all problems in two days. If so, they were doomed to disappointmnt. But if the meeting accomplished nothing more than highlighting the above fact—and incidentally it did accomplish a great deal more — it was well worth the price of admission.

Outerwear Association To Hold Exhibit

The first annual Knitwear Industrial Exposition will be held at the Grand Central Palace, New York, the week of Feb. 13, under the auspices of the National Knitted Outerwear Association. The annual convention of the association will be held concurrently. Exhibits will consist of machinery, yarns, dyes, needles, trimmings, buttons, containers and other items used in producing knitted outerwear.

Speaking of the program, Sidney Korzenik, secretary of the association, states:

"The various sessions will be held in the Grand Central Palace where the business of the convention will be transacted and a series of round-table conferences held immediately after luncheon, that everyone in the industry should attend. The luncheons will be at 12 noon sharp, and last until 3 p.m. This arrangement allows the knitted outerwear manufacturers from 10 a.m. to 12 noon to visit the exposition, luncheon in the building and round-table conferences from 12 noon to 3 p.m. and from 3 p.m. until 10 p.m. again to visit the exposition."

The following are members of the exposition committee:

William Portner, Franklin Sweater Mills, chairman; Dan F. Byrnes, Bradley Knitting Co.; A. Paul Cohen, Suffolk Knitting Mills; A. Dunner, Fred H. Samuels & Co.; Samuel Goldworm, Goldworm Sportwear Co.; Daniel Starr, Starr Knitting Mills; Sidney Friedman, Friedman-Blau-Farber; Joseph B. Knipe, Walter E. Knipe & Co.; Philip Leff, National Spinning Co.; John Sichel, Dearnley Bros.; Bernard Weil, Rose Mills; also Harold R. Lhowe, counsel, and Sidney Korzenik, secretary, of the National Knitted Outerwear Association.

A. B. Coffman, 35 E. Wacker Drive, Chicago, has been engaged to organize and manage the exposition.

•

Hosiery Situation Regarded as Fair

Hosiery business showed a pick-up the first part of the month after the slump experienced the latter part of October. While the gain was not general enough to be of particular significance, it was regarded as encouraging. One development that is being watched with interest is the movement of prices when considered in conjunction with quality. A leading jobber has advanced prices on its low-priced line and there is a general feeling that either more push should be given to the better class of merchandise or the cheaper lines should be placed on a paying basis.

Non-run hose have met and passed, in a small way, the test of reorders. Acceptance is still considerably better in some cities than in others, but a sufficient volume of merchandise has not been available to bring out any permanent differences. With the output of the Berkshire group sold up until the end of the year, and with jobbers of this merchandise also sold up, interest centers on the Gotham development. When Gotham places its product on the market it is expected to announce that sufficient stocks have been made up to take care of any ordinary demand. With the increase in non-run hose available for sale by the retailer there will be a better chance to gage mass consumer acceptance.

•

Kayser Has Loss of $24,056 for Quarter

Net loss of $24,056, after interest and depreciation, for the quarter ended Sept. 30, 1932, is reported by Julius Kayser & Co., as compared with net profit of $130,872 for the corresponding quarter in 1931. The company's fiscal year starts July 1.

A special meeting of stockholders will be held Nov. 16 to vote on the recommendation of the directors that the company's no par stock be given a par value of $5. According to an official, this will allow the company to write down to $1 good will, patents and trademarks now carried on the books at $5,644,000, and also allow plant and equipment to be carried at present value rather than cost less depreciation. The 422,420 shares of common stock were carried on the books at $13,091,026 in the balance sheet of June 30.

•

Western Outerwear Officials Meet

A. J. Friedlander, of the M. Friedlander Knitting Co., Milwaukee, Wis., was reelected president of the Western District Knitted Outerwear Manufacturers Association at its 15th annual meeting, held in Milwaukee Oct. 25. Other officers reelected were; vice presidents, John A. Sand, Jr., Sand Knitting Mills Co., Chicago, and I. B. Davies, Bradley Knitting Co., Delevan, Wis.; secretary and treasurer, Harry M. Levy, Elbro Knitting Co., Milkwaukee.

Directors elected for three years include: John Sand, Jr.; Werner Lutz, National Knitting Co., Milwaukee; Ernst Wallace, Milwaukee Knitting Co., Milwaukee; Horace Farrally, Shaker Knitting Mills.

Recommendation was made to the national office that the industry be sounded out on the possibility of changing terms from 2%, 10-60 extra to 3%, 10 e.o.m.

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Lehigh Hosiery Operation Continued to Nov. 26

The Federal District Court of Philadelphia has granted permission to the receivers of the Lehigh Silk Hosiery Mills, Inc., to continue operation until Nov. 26, so that there will be additional opportunity to dispose of the plant as a unit. Operations, however, will be confined to merchandise in process.

If a satisfactory bid is not obtained for the whole plant the receivers stated

that machinery and other assets would be disposed of in parcels at either public or private sale unless it is found advisable to continue operation on a large scale. The firm went into receivership on June 27.

•

Campe Corp. Shows Profit of $128,551

Net profit of $128,551, after charges, for the fiscal year ended July 31, 1932, is reported by the Campe Corp., New York, hosiery and underwear. The consolidated balance sheet shows current assets of $2,709,008 and current liabilities of $134,740, as compared with $3,618,372 and $196,643, respectively, at July 31, 1931.

•

First Swimsuit Color Card Issued

The first color card to be devoted entirely to swimsuits has been issued by the National Knitted Outerwear Association with the assistance of the Textile Color Card Association of the United States. The card contains 18 colors and should be of considerable benefit in standardizing the shades used and in cutting down the waste due to an unneeded multiplicity of colors. Firms which are not members of the Outerwear Association may obtain cards at $1 each by writing the association at 1 Madison Ave., New York.

•

Jantzen Introduces Two-Way Stretch

Jantzen Knitting Mills has announced that one of the features of its 1933 swimsuit line will be the use of fabrics with a two-way stretch, made possible by knitting Lastex in conjunction with worsted yarns. In some cases the Lastex is introduced only in the trunks while in others it is used throughout the garment. It is claimed that enduring elasticity is secured without sacrificing softness. The Lastex does not appear on the surface of the fabric.

•

Phoenix to Exhibit At World's Fair

The Phoenix Hosiery Co., Milwaukee, Wis., has announced that it has signed a contract for an extensive block of space at Chicago's World's Fair which will open June 1, 1933. The manufacture of hosiery will be dramatized by the use of machinery in actual operation. A full-fashioned legger will be among the features.

•

August Hose Production Up

Production of all classes of hosiery for the month of August was 4,473 doz. pairs, as compared with 3,127 doz. pairs in July, according to the Department of Commerce. Sales were 6,024 doz. pairs in August against 3,315 in July, and net shipments 4,646, against 3,105. At the end of August unfilled orders were 3,568 doz. pairs as compared with 2,254 at the end of July, and stocks on hand 9,225 against 9,479.

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Knitting Mill News

McDonough (Ga.) Hosiery Mills controlling stock interest has been acquired by D. A. Hood, manager of the plant. Additional machinery has been added to double capacity.

R. A. Morgan is reported to have leased the former Chester Knitting Mills plant at Rome, Ga., for a new hosiery mill. Alterations will cost $12,000. The plant will later become the Morgan Mills, Inc.

Fairwood Knitting Mills, Inc., Wakefield, Mass., have been formed with a capital of $25,000, to operate a local mill. The company is headed by A. H. Fairbanks, president, also treasurer of Middlesex Knitting Co.

The former Ipswich Mills plant at at Ipswich, Mass., vacant since liquidation of the firm in 1929, when most of the machinery was sold to Russia, was sold at auction Oct. 27 for $13,000 to E. E. Currier, local real estate operator. The trade name "Ipswich" was purchased in 1930 by the company which is now operating the Gloucester plant of the Ipswich Mills.

Whitesboro Knitting Mills, Inc., Whitesboro, N. Y., has been organized and incorporated by A. S. Maslan, Yorkville, N. Y., and associates, to establish and operate a textile mill.

Dixie Knit Products Corp. has been organized in Syracuse, N. Y., with a capital of 200 shares of common stock, to establish and operate a knit goods manufacturing and distributing business.

Midland Park (N. J.) Knitting Mills, in bankruptcy, will be offered at public sale Nov. 15 by court order. The receivers state that they have a bid of $31,000.

Pilot Full-Fashioned Mills, Inc., Valdese, N. C., has completed plans for a one-story addition to mill, estimated to cost close to $30,000, with equipment. Nicholas Rhodes, Charlotte, N. C., is architect.

The Wiscassett Mills Co., Albemarle, N. C., has awarded a contract to Carl E. Taylor for the recovering of 35 additional houses in the mill village.

Byrum Hosiery Mills, closed at High Point, N. C., last month by a strike, will soon reopen at Shelby, N. C., under the same management in building formerly occupied by Janet Hosiery Mill.

Marion (N. C.) Knitting Mill will at once add 50 new knitting machines to its equipment, W. W. Neal, president, announced. Production will be increased from 1,600 doz. pr. rayon half-hose per day to over 2,000 doz. pr. and additional workers added to the payroll. A 5% increase in wages was ordered last month.

Cambria Silk Hosiery Co., Philadelphia, announced a 10% increase in wages to its 500 employees.

H. C. Aberle Co., Philadelphia, has assumed full ownership of the Combine Hosiery Corp., distributors. Since its inception in 1926 Combine has distributed a large part of Aberle's full-fashioned output. No major changes are indicated in policy or management.

Hassinger Bros., who have been associated with hosiery mills in central Pennsylvania for 25 years, have leased a plant on South Penn St., Millheim, Pa., where men's better-grade silk hosiery will be manufactured.

Rockwood (Tenn.) Mills, manufacturers of hosiery, posted notice recently that a wage increase of between 10 and 12% for its 600 employes would become effective immediately. Kingston (Tenn.) Hosiery Mills and Oneida (Tenn.) Mills affiliated with Rockwood made similar increases.

J. A. Bonneville, who recently resigned as manager of the full-fashioned silk hosiery department of Belding-Corticelli, Ltd., Montreal, Canada, is establishing a small silk hosiery plant at Montreal.

TEXTILE WORLD'S

Processing Digest

TOO often, expenditure for research is regarded as so much overhead—a luxury to be foregone when sales decrease or profits decline. This attitude is due largely to the fact that it is sometimes difficult to estimate the dollars-and-cents return from research.

Of particular interest, therefore, is the report on "Chemical Research in the Depression," by Maurice Holland and W. Spargen, published in *Industrial & Engineering Chemistry*. Of some 50 companies in the chemical industries which replied to a questionnaire as to the effectiveness of research, 95.7% have found that research has helped to make profits or to limit losses in the last two years, and 96.2% have been enabled by research to produce new products which have been commercialized during the same period.

In view of the regrettable deficiency in chemical research in textile plants, this money-making aspect is offered as a substitute for the money-saving attitude which has led to that deficiency. The right kind of research is an investment, not an expenditure.

Attractive presentation of head-ends in Cellophane envelopes

A. A. T. C. C. Notes

Nominations for national officers for 1933 of the American Association of Textile Chemists & Colorists are: president, Dr. Robert E. Rose, director technical laboratory, E. I. du Pont de Nemours & Co.; vice presidents, Wm. H. Cady, chief chemist, United States Finishing Co., and Alex Morrison, assistant chemist, American Woolen Co.; treasurer, Wm. R. Moorehouse, resident manager, National Aniline & Chemical Co.; secretary, A. Newton Graves, chemist and purchasing agent, Franklin Process Co.; councilors, Wm. D. Appel, chief textile section, U. S. Bureau of Standards, Hugh Christison, chemist, Arlington Mills, and Carl Z. Draves, chief chemist, Ludlow Mfg. Associates.

At the fall meeting of the Philadelphia section, Dr. Hugo Kauffmann, professor of chemistry at the Reutlingen Textile High School and the Stuttgart High School, presented a paper discussing the latest research work on cotton bleaching. The speaker first outlined the methods which can be employed for determining the amount of damage incurred during the bleaching process and then took up the kinetics of hypochlorite and peroxide bleaching. According to the speaker, two substances are necessary for bleaching—a true oxidizing agent and an activator. In hypochlorite bleaching, the hypochlorite ion (HOCl) is the oxidizing agent and hypochlorous acid the activator. Maximum bleaching activity takes place at pH 7 to 8, and the danger of oxycellulose formation is greatest at the same point. That is, cotton suffers the most injury in sodium hypochlorite bleaching liquors containing one molecule of chlorine to 1.5 molecules of sodium hydroxide, and either increasing or decreasing the proportion of sodium hydroxide reduces the danger. The damage is slight if the proportion of caustic soda is less than one or greater than two molecules to one molecule of chlorine. Thus, it is possible to bleach in acid solutions without any great injury to the cotton. Free hypochlorous acid, of itself, attacks cotton only slightly, and is not, as has been supposed in the past, the true explanation for the damaging action.

Speaking of peroxide bleaching, Dr. Kauffmann pointed out that in many ways it is analogous with hypochloride bleaching. Here again both an oxidizing agent and an activator are necessary to bleaching action, which is not due, as it is often asserted, to nascent oxygen. In peroxide bleaching, for example, the oxidizing agent is a salt of hydrogen peroxide (probably $Na^+ + [O\text{-}OH]$) and the activator is free hydrogen peroxide. With a real understanding of the bleaching action, it is now possible to control the bleaching process more accurately and to avoid damage to the fibers.

Speakers at the October meeting of the New York section were Dr. Oscar R. Flynn, of the Waldrich Co., and K. E. Luger, of American Sheet & Tin Plate Co. Dr. Flynn discussed some of the problems encountered in ageing of fabrics printed with vat colors and suggested a type of ager which he believes would overcome overheating of the cloth. Mr. Luger described the corrosion-resisting properties of stainless steel and outlined the advantages of this material in the construction of dyehouse equipment.

Study of the fundamental properties of a silk made by Milton Harris, research associate of the association, and reported in the October issue of the Bureau of Standards Journal of Research, has shown that the isoelectric point of silk is at pH 2.5. In this investigation electrophoretic measurements were made both of suspensions of silk fibroin in buffer solutions and buffered solutions of silk fibroin in lithium bromide. The low isoelectric point of silk shows it to be one of the most acid proteins known, and accounts for the affinity of this fiber for basic dyes.

Meeting of the Southeastern Section was held in Atlanta, Ga., on Friday, Oct. 28. Meeting of the Rhode Island Section was held in Providence on the same day.

Arthur Thompson, Jr., superintendent of the North Carolina Finishing Co., Salisbury, N. C., was elected chairman of the Piedmont Section of the American Association of Textile Chemists and Colorists, at the fall meeting of that group, held in Charlotte, N. C., Oct. 29. George Feindel, of Union Bleachery, Greenville, S. C., was elected vice-chairman; Fred A. Whitney, of Haw River, N. C., treasurer; and Hugh Puckett, of Charlotte, secretary.

A. O. Joslin, general manager of the Rock Hill (S. C.) Printing and Finishing Co., delivered an address on "The Necessity for Creative Management in the Textile Industry," while John J. Sokolinski, of the Arabol Mfg. Co., presented a paper on sulphonated oils. The meeting was concluded by a banquet at which John L. Crist, of the Calco Chemical Co., Charlotte, presided.

Analysis of Weighted Silk

A procedure which is said to be generally applicable for the analysis of weighted silk is described in the November issue of the Bureau of Standards *Journal of Research*. By this method, weighting and finishing materials are removed by repeated extractions first with hot water, then with a 2% solution of sodium carbonate, and finally with a solution containing 2% of hydrochloric and 2% of hydrofluoric acid. Results of analyses of samples of known composition are presented which indicate that the results are correct to within 1% of the weight of the dried, finished material. Results obtained by analysts working in different laboratories have been in good agreement when samples of the same silk were analyzed. Qualitative methods are given for the identification of aluminum, lead, phosphate, silica, tin, and zinc.

•

Wetting-Out Agent

Lenocal Liquid, a new wetting-out, detergent, and stain-removing agent for all types of textiles, has been announced by General Dyestuff Corp. Suggested uses of this compound are as a penetrating agent in boiling-out or kier-boiling operations; in sodium hypochlorite bleaching to eliminate previous boiling-out of cotton; in the pretreatment of fabrics which are to be mercerized; in pasting of dyestuffs and in cotton dyeing; and in cleaning wool or cotton waste, rayon, knit goods, etc. Advantages cited for Lenocal Liquid include stability in hard water and acid solutions, good wetting-out and emulsifying properties, effectiveness both in hot and cold baths, and good rinsibility.

•

Textiles and Laundries

Closer cooperation between laundry owners and textile men, increased use of pre-shrunk fabrics, and growing demand on the part of converters and retailers for fast-dyed wash fabrics are among the hopeful signs for quality merchandise noted by George H. Johnson, research director of the Laundryowners' National Association.

•

New Dyestuffs

General Dyestuff Corp. announces the following dyestuffs:

Celliton Fast Violet 6B powder for dyeing cellulose acetate. The shades produced from an olive-oil soap bath show a bright violet, bluer than that obtained with Celliton Fast Violet B. The new dyestuff has very good affinity; very good fastness to light, scrooping, acid, rubbing, hot pressing and alkali; good to very good fastness to water and washing; and good fastness to perspiration. It is not recommended for direct and discharge printing.

Celliton Fast Yellow GR Powder for dyeing cellulose acetate. When dyed from a soap bath, it yields golden yellow shades of very good fastness to light and acid, excellent fastness to scrooping, good to very good fastness to water and chlorine, and good fastness to washing. As its level-dyeing properties are very good, Celliton Fast Yellow GR is suitable for compound shades. It is also recommended for direct and discharge printing.

Rapidogen Olive Brown 1G, Brown 1B, Brown IRR and Red IR. They supplement the Rapidogen dyestuff range with brown shades and an Alizarine Red which may be printed as a pink and possess satisfactory fastness to light. All the shades have very good all-round fastness and are stable mixtures in powder of diazotized bases with naphtholates of the AS range, readily soluble in water with the addition of alkali. Prints may be developed as follows: by wet developing process consisting of short treatment with boiling hot acetic-formic acid bath without steaming (may be steamed without detriment if necessary to develop other colors used in the print); by steaming in the presence of acetic-formic acid; and by a new method worked out by the company in which the prints are padded on the face between two rollers with the acetic-formic acid mixture and then immediately developed on the hot cylinders of a dry can.

•

Standard for Sulphonated Oils Now Effective

The U. S. Bureau of Standards has announced that the commercial standard for grading of sulphonated oils which was accepted in writing by a number of manufacturers, distributors, and users of these products estimated to represent a satisfactory majority may be considered effective for new production and clearance of existing stocks as of Sept. 1, 1932. A printed booklet covering this commercial standard will be sent to each acceptor.

PROCESSING IN THIS ISSUE

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Processing Plant News

Seneca Textile Corp., New York, has taken over the entire production of the Arkwright Finishing Co., Fall River. The Arkwright plant, it is stated, has a yearly finishing and printing capacity in excess of a hundred million yards. The Seneca company also has a vertical affiliation with the Arkwright No. 2 Mill, Fall River, having a capacity of 28,000,000 yd. of clip spot marquisettes a year, and also with the Aiken Mills of Bath, S. C., having a capacity of 35,000,000 yards of plain and fancy marquisettes annually.

Rock Hill (S. C.) Printing & Finishing Co. is operating on a full time day and night schedule, finishing 10,000,000 yd. monthly. An addition has been started to the color shop, which is being constructed at one end of the large main building. An addition will be constructed to house an additional 550-horsepower boiler and stoker. The work of constructing these additions is under the supervision of the Gallivan Construction Co., Greenville, S. C.

The Atlantic Dye Works, recently incorporated by Joseph Tigler and Nick Di Giaimo, is now operating in George Street, Paterson, N. J., dyeing viscose and acetate rayons and novelty goods. Its capacity is about 400 pieces daily. Mr. Tigler, president of the firm, founded the Diamond Silk Dyeing & Finishing Co. in Union City 10 years ago, and went to Paterson in 1931.

Williams Silk Mfg. Co.'s plant at West New York, N. J., is being prepared for occupancy by a dyeing and finishing firm, according to David Speizman of Ashley, Pa., appointed by Cole & Morrill, receivers of the Williams firm, to liquidate the machinery and equipment.

Robjam Printing & Dyeing Co. has made a successful offer for the assets of the Consolidated Piece Dye Works, Paterson, N. J., in bankruptcy. The offer involved a cash payment of $30,500 and assumption of indebtedness amounting to $140,000.

Textile World Analyst

MANUFACTURING MARGINS STILL ON UNSATISFACTORY BASIS

October Textile Activity Normal—Total consumption of textile fibers during the month of October closely approximated that of a normal year and the change from September was slight. Taking the first ten months of 1932, textile activity was 15% less than for the similar period of 1931 and 21% less than for the first ten months of a normal year. In determining a normal year, month by month consumption figures for the period 1924-1931 were averaged.

▼ ▼ ▼

ALTHOUGH textile mills continued to operate at a normal rate during October, and many were in a sold-up position, there is no general evidence that manufacturers have given real profits proper consideration in quoting prices. Courageous price policies have, however, been noticed in some lines and there is hope in the wide-spread feeling that the industry should concentrate on the matter of *profitable* operation rather than mere operation.

The situation in carded cotton fabrics was not encouraging, inasmuch as the manufacturing margin was less the last week in the month than it was the first. Taking the average price of a representative group of carded fabrics and subtracting the cost of clean cotton, we find that the manufacturing margin for the first week was 12.92c. per lb. Owing to the fact that raw cotton fell considerably during the second week, and that fabric prices were not lowered as rapidly, the manufacturing margin rose to 13.11c. per lb. at that time. As was also the case in September, fabric prices were not held firm in the face of a declining cotton market, despite the fact that many believed it offered a real opportunity to build profits. We find, therefore, that the manufacturing margin dropped to 12.56c. per lb. the third week of the month and then slumped to 11.99c. per lb. the last week. Although this figure is considerably higher than the margin which prevailed during June and July, it is less than at any time since the early part of August. Table I shows fluctuations in margins.

Carded yarns displayed a similar weakness in prices. Manufacturing margin,—obtained by subtracting the cost of clean cotton from the average selling price of a group of carded yarns —was 12.79c. per lb. for the first week in the month, which was better than the last week of September. The second week of the month saw this figure rise to 12.99c. only to fall the following week to 12.5c. and then sink further to close the month at 11.59c. per lb. Table II shows figures for other months.

In contrast to the above, the comeback of combed yarns is refreshing. After subtracting the cost of clean 1¼ in. cotton from the selling price of 60/2 C.P. warps, we find that a manufacturing margin of 28.7c. per lb. was left at the prices prevailing the first week of the month. After taking a sharp dip the third week of the month to 23.7c. per lb., prices were raised and the margin put back to 27.3c. per lb. Other comparable margins were: July, 1931, 24c.; July, 1932, 21.4c.; August, 1932, 24.8c.; September, 1932, 29.67c.

Raw wool remained relatively stable during the month and did not fluctuate more than 1½c. per lb. The situation in worsted yarns was somewhat similar although there was a slight tendency to ease prices toward the end of the month. Subtracting the cost of clean wool from a typical worsted yarn leaves a manufacturing margin of 54c. per lb. at the prices which prevailed during October. This compares with 54.5c. per lb. in September, 53.5c per lb. in July, 64c. in June, and 76c. in July, 1931.

The TEXTILE WORLD Index Numbers show no great change from September although it is noticeable that raw cotton dropped 7 points and raw silk 3 points. Attention is called to the fact that the figure of 81 given for yarn in the September issue was in error and this has been corrected to 90.

TABLE I. CARDED FABRIC MARGINS

Date	Margin in cents
July, 1931.....	15.3
October, 1931.....	13.3
January, 1932.....	12.1
June, 1932.....	9.5
July, 1932.....	9.1
August, 1932.....	11.1
September, 1932...	13.0
Week ended Oct. 8.	12.9
Week ended Oct. 15	13.1
Week ended Oct. 22	12.5
Week ended Oct. 29	11.9

TABLE II. CARDED YARN MARGINS

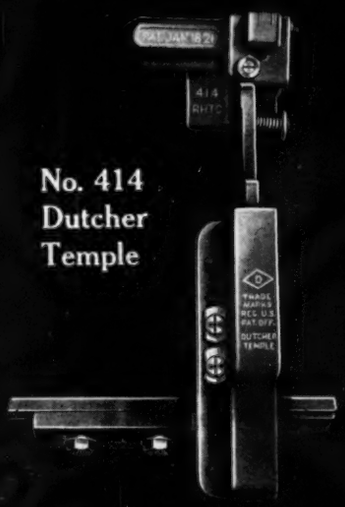
Date	Margin in cents
October, 1931.....	12.7
April, 1932.....	10.8
July, 1932.....	9.6
August, 1932.....	9.7
September, 1932...	12.8
Week ended Oct. 8.	12.7
Week ended Oct. 15	12.9
Week ended Oct. 22	12.0
Week ended Oct. 29	11.5

Textile World's Index Numbers

Date	Cotton Index Numbers: Cotton	Cotton Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Date	Raw Silk Index: Raw Silk
July 31, 1914	100	100	100	100	100	100	100	100	July 31, 1914	100
1925.....	193	193	193	177	221	226	222	234	1924-25 season	140
1926.....	146	159	161	152	189	195	199	210	1925-26.....	172
1927.....	130	146	153	147	179	184	186	195	1926-27.....	141
1928.....	160	162	163	166	218	201	198	197	1927-28.....	126
1929.....	158	163	156	168	182	184	193	198	1928-29.....	126
1930.....	114	131	127	147	131	143	164	190	1929-30.....	104
1931.....	75	97	99	121	102	114	134	165	1930-31.....	62
1932										
Jan.....	53	78	74	102	94	104	127	147	Jan., 1932....	41
April.....	49	75	73	98	83	98	121	133	May, 1932....	28
June.....	42	66	63	94	62	76	110	116	June, 1932....	25
July.....	47	68	62	96	59	72	101	116	July, 1932....	25
Aug.....	60	75	76	94	66	75	99	116	Aug., 1932....	36
Sept.....	59	90	84	107	82	94	116	130	Sept., 1932....	40
Oct.....	52	83	78	107	82	97	115	130	Oct., 1932.....	37

1932

IT'S NEW
IT'S BETTER



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THE SKF GALLERY OF DISTINGUISHED PERFORMANCE USERS:

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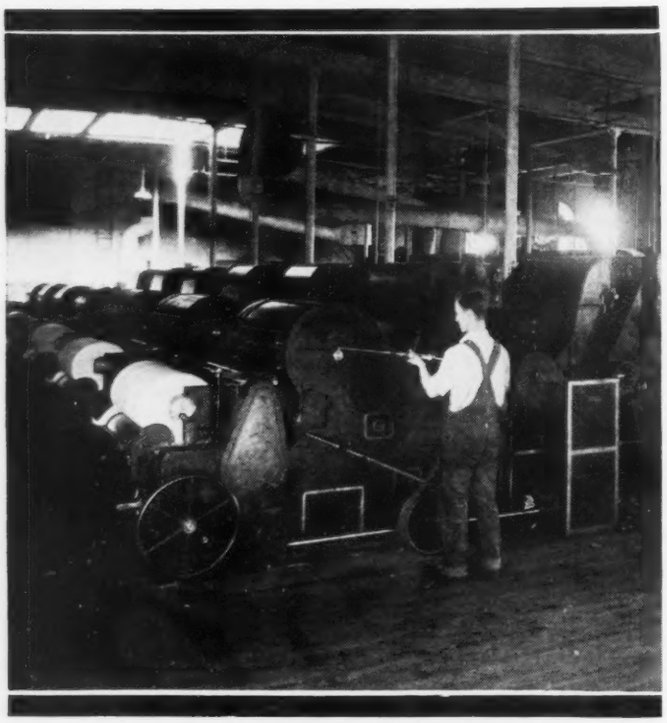
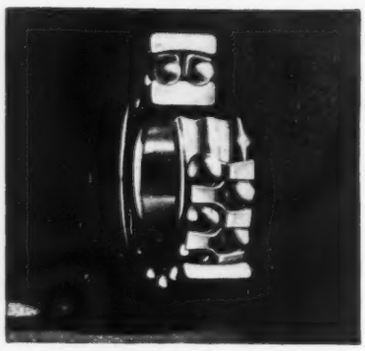


DESIGNED to operate continuously at full load, the modern Saco-Lowell One-Process Picker is equipped with SKF Ball Bearings to insure unfailing operation at low cost. Essentially a heavy duty machine, the bearings are naturally subject to shocks at high speeds. Consequently, accurate alignment of the principal moving parts throughout the life of the machine becomes vitally important. To meet that demand, SKF Performance Takes Preference Over Price.



SKF Bearings promote confidence that the equipment will run for long periods of time, free from trouble and constant and expensive maintenance. These bearings are free from wear and need no adjustments. Furthermore, sealed housings prevent lubricant leakage, and the stock is noticeably free from oil streaks. The equipment, too, is free from dust, gum and dirt. All these factors are in keeping with the high standard of quality desired by Saco-Lowell.

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● *You may buy a bearing as a bargain but try and get a bargain out of using it. for nothing is apt to cost so much as a bearing that cost so little.*

SKF
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THE GATE LATCH

Textile's latest development that stops unproductive wear to both plate and gate

Tenter Clip life is practically doubled and yearly maintenance costs are cut to the bone when you install a chain of the New Textile Automatic Tenter Clips.

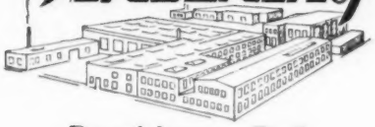
Provided with many exclusive improvements that include the patented gate latch, a device that stops grooving to the plate and dulling of the insert blade by holding the swinging gate securely away from the plate during the return travel of the chain to the entering end of the machine.

The quick drop controller has a longer bearing surface, that, in addition to maintaining perfect alignment, permits the inserts to catch and hold the fabric close to the selvedge.

Every connecting rivet is equipped with an Alemite fitting for pressure type lubrication, with grease.

Before you install your next chain, it will be to your advantage to see and inspect this modern Tenter Clip.

The Textile Finishing Machinery Co.



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Manufacturers of Machinery for
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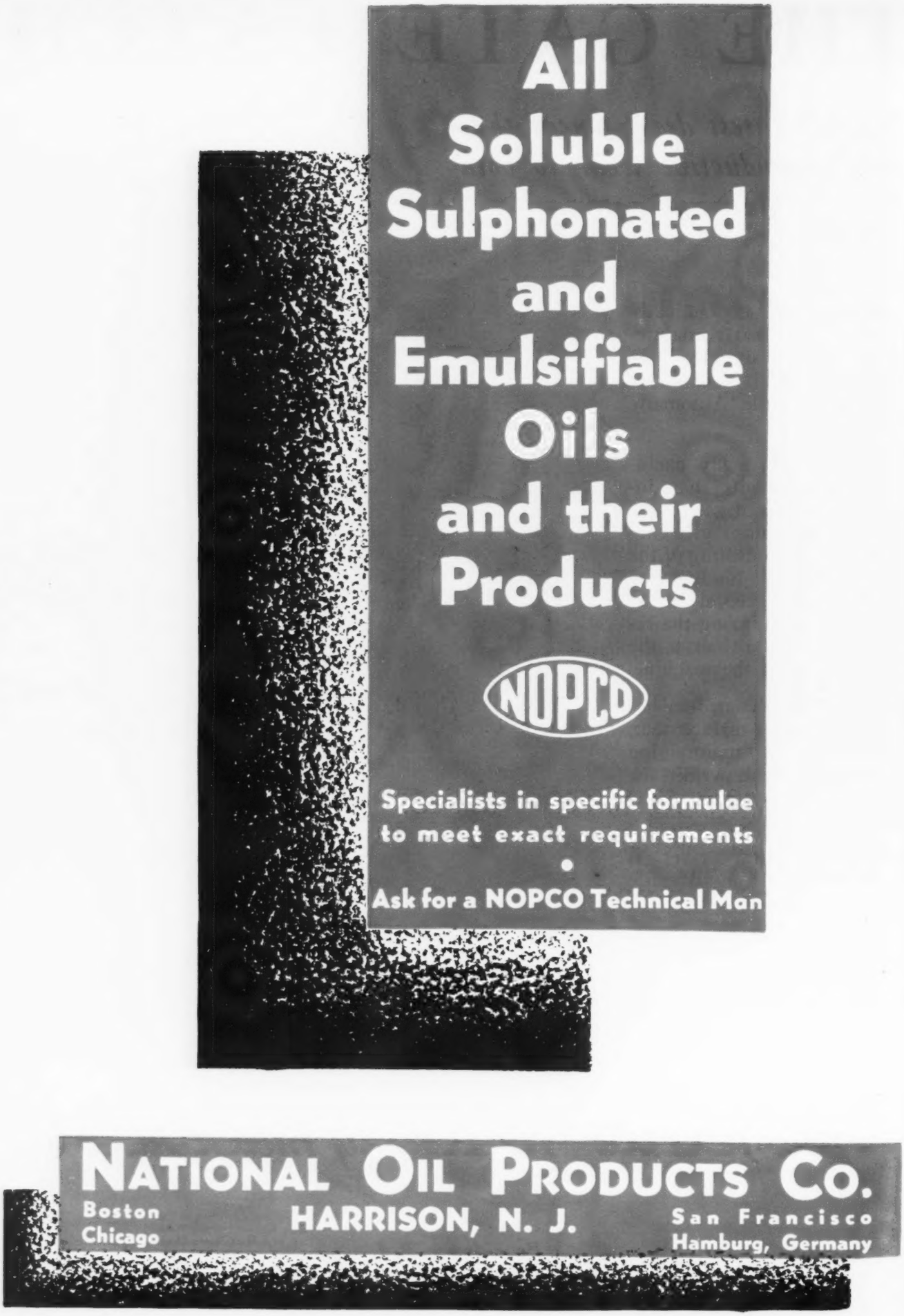
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Any mill contemplating the purchase of a Sanforizing Machine should know of this preference for the
BUTTERWORTH SANFORIZER

TODAY there are 21 Sanforizing Machines operating in plants in various parts of the country. 18 mills have Sanforizing licenses. Of these 21 machines, Butterworth has furnished 12, more equipment in dollars and cents value than any other one concern licensed by Cluett, Peabody & Co., Inc., to build Sanforizing units.

Here are the figures: —

Butterworth has built 7 Sanforizing Tenters, each 90 feet long, two without chains; 12 Palmer units; 3 complete heater houses, and 5 sets of feed rolls. This Butterworth Sanforizing equipment has been installed in the following plants: —

Delta Finishing Company, Philadelphia, Pa.
Lanett Bleachery & Dye Works, Lanett, Ala.
North Carolina Finishing Co., Salisbury, N. C.
Pepperell Manufacturing Co., Lewiston, Me.
Pepperell Manufacturing Co., Lindale, Ga.
Ramapo Finishing Corp., Sloatsburg, N. Y.
Union Bleachery, Greenville, S. C.
Ware Shoals Mfg. Co., Ware Shoals, S. C.

The Union Bleachery has installed three Sanforizers, and the Pepperell Mfg. Co. two Sanforizers. The Erwin Cotton Mills Co., West Durham, N. C., have ordered and will shortly install a Butterworth Palmer Unit, and we have just received an order for a Palmer Unit from the Lowell Bleachery, St. Louis, Mo. This, incidentally, will be the first Sanforizing Machine installed in the Middle West.

Butterworth Engineers will be glad to discuss Sanforizing in connection with **your** *products and if you desire will show you why there is so great a preference for Butterworth Sanforizers. Bulletins on Butterworth Sanforizers will be sent promptly upon request.*

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Established 1820

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Now . . . Get *Multiplied* Life from *This* Cotton Harness

With fewer warp breaks—more continuous loom operation and greater production

Chafeless Cord has upset old ideas that all cotton harness is alike—for we have found a way to multiply the life of cotton harness and at the same time give you more continuous loom operation and greater production.

In the past mill men supposed that twine was the "life" of harness. Today we know that it's twine *finish* that determines durability.

So that's the reason we use long staple selected twine in Chafeless Cord and apply five (5) coats of specially prepared varnish—add a humidity-proof cover.

We know that by baking each finish 8 hours—a total of 2 days and 2 nights—at 175° that we get a harness with the toughness of steel yet with the smoothness and flexibility of cotton.

It's the finish that multiplies Chafeless Cord's life and at the same time gives you this flexibility which permits knots and slubs to slip through and go into the face of the goods; permits the fine fibres of the warp yarn to improve cover and fullness of your weave.

Performance Proves the Value

Knowing that performance proves the value of these Chafeless Cord features, we asked certain key mill men to tell us operating results. Below are a few of the statements:

William Hill of Nashua Mills, Nashua Manufacturing Company:

> "We ran 500 set of Chafeless Cord day and night for two full years and did not lose a single set—an exceptionally good record. There were practically no repairs. During this period the smoothness of this harness and its freedom from chafing of the warp has been an important factor in continuous production."

J. E. Tobin, Superintendent, Butler Mill:

> "We ran 500 sets of Chafeless Cord day and night for particularly the quality of our fabrics. We have tried to accomplish this through research and regular tests. In our tests we have found the part that harness plays in quality and production, therefore, we are using Emmons Chafeless Cord."

These statements are typical of the reception given Chafeless Cord wherever competitive tests are conducted; wherever Mills measure carefully the effect of harness on both the quality and quantity of production.

Over 50,000 looms are operated today with Chafeless Cord Harness. The multiplied life plus specific operating advantages makes this the fastest selling cotton harness in the world.

At Aurora Cotton Mills, Aurora, Illinois, Chafeless Cord Harness with the Warp-Saving Finish has come to replace *all* other harness.

Make This Test

Equip a section of your loom with this long-life harness; check every operating factor. Learn for yourself the truth about harness life. See for yourself what freedom from warp breaks means to production. Find out what this new warp-saving finish means to the quality of your weave.

Chafeless Cord is the harness for quality weave and maximum efficiency. Try it on your next order and gain the benefits. It costs no more than *ordinary* cotton harness —far less than harsh, metal harness.

What You get in Chafeless Cord Harness

1. **Unique Process: Long staple** cotton twine is selected and treated with a special preparation which lays the tiny lint fibres evenly, flat and parallel.
2. **5 Coats of Varnish:** 5 Coats of specially prepared varnish are evenly distributed by precision machinery—uniform thickness without varnish lumps.
3. **Slow Baking 2 days and 2 nights:** Slow baking for two days and two nights adds durability. **Slow** baking eliminates varnish blisters; gives freedom from rough edges that cut lint fibres from warp yarn.
4. **Humidity proof dress:** Each Chafeless Cord Harness has a special humidity proof dressing (impervious to weave room moisture) applied. This lengthens the life greatly.
5. **Impervious to sizing compounds:** Chafeless Cord because of the special care taken is impervious to sizing compounds —the finish resists wearing of the eyes almost indefinitely.
6. **Super-smoothness:** You get a glass-like super-smoothness of the twine that lessens loom stops; gives better cover; increases quality and quantity of production.
7. **Speedier Delivery:** The extensive and advanced labor-saving equipment of our shop insures delivery 45 per cent sooner than ordinarily secured on rush orders. No hand methods can compete with our modern machinery.
8. **Hold Orders Shipped on 24 Hours Notice:** We finish hold orders, keep them for you —ship them when you want them. Thus you get what you want when you want it.

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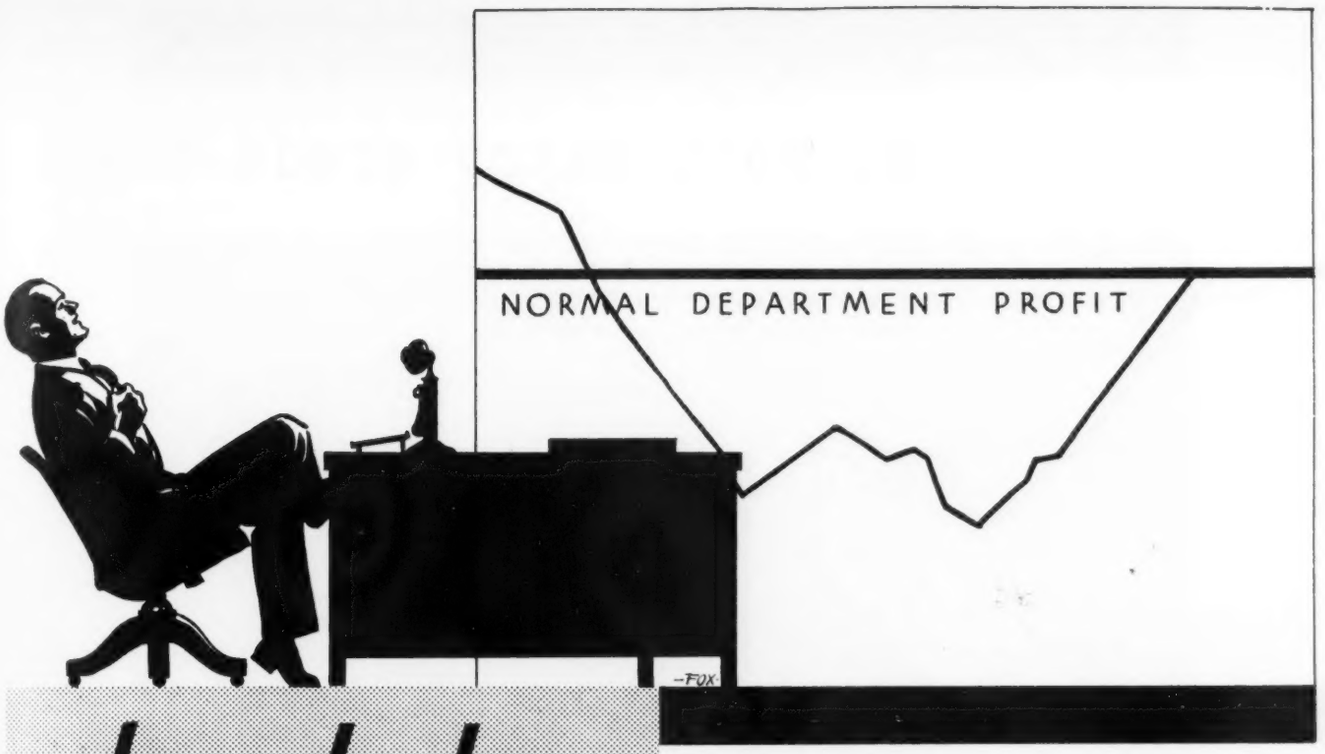
Lawrence, Massachusetts

Fewer warp breaks—Greater production per loom



back to NORMAL

A CERTAIN bleaching, dyeing, finishing plant experienced difficulty with their large extractors. The metal coating on the baskets was wearing quickly; cleanliness was impaired; work on pick-up slowed. The trouble was traced to the metal springs on the end of the packages hitting the side of the baskets during loading and unloading operations. No solution was offered—waste continued.

A T & M engineers, in the office of the superintendent one day, were told of the losses which occurred and they asked to watch the operations.

Back again at the A T & M laboratory, the actual working conditions were duplicated and motions studied. Facts from the tests were carefully examined and a side sheet of new design using a special alloy was developed. Installed on the company's extractors, all losses stopped—production increased and department profits came back to normal.

If certain known losses are being tolerated for want of better methods,—if you are planning to recondition old machines, or purchase new extractors, get in touch with A T & M engineers. Every facility is at their disposal to accomplish results . . . a completely equipped laboratory for duplicating actual operating conditions . . . an 89-year background of building extractors . . . a complete line of machines from 5″ to 72″ and larger with baskets of any type in all machinable metals and coatings. Address: The American Tool & Machine Co., 1413 Hyde Park Ave., Boston, Mass., or New York Office, 30A Church Street.

AMERICAN TOOL & MACHINE CO.

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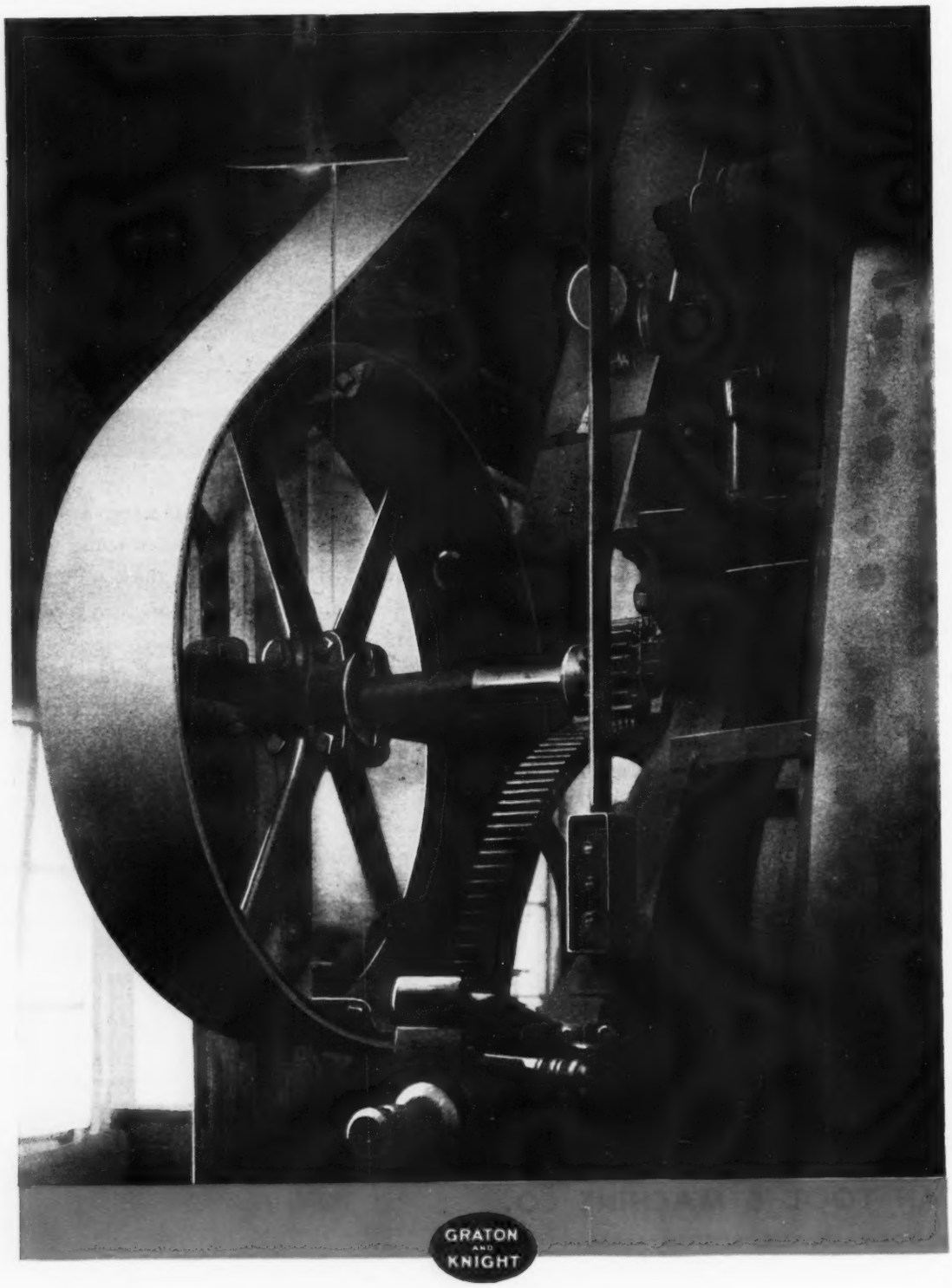
30A CHURCH ST., NEW YORK CITY

EXTRACTORS

LINK SUSPENDED EXTRACTORS 40″ to 72″ & LARGER

" This belting must carry grade number



GRATON AND KNIGHT

...nd the Research indentification marks"

. . . that's the way one superintendent writes PERFORMANCE into his belting requisitions

MEN like this superintendent have come to an entirely new viewpoint on the question of power transmission. Their vision is no longer limited to the performance of the individual machine. They see possibilities for reduction of a major item in manufacturing costs.

Many have found substantial economies through installation of modern "group and unit" drives. Under-loaded motors have been eliminated, power factor troubles overcome without recourse to costly auxiliary equipment. Maintenance has been reduced . . . housekeeping simplified.

The new Graton & Knight Research Belting meets the demands of such a program exactly. This new product, different in its characteristics, has brought the flat belt drive up-to-date. Performance data from plant after plant, in every field of industry, shows lower maintenance, improved performance, substantial power savings.

Controlled elasticity gives this modern belt 75% less stretch at normal tension and bearing pressure, and without preliminary "breaking in". Its new high friction surface transmits full rated load from the day of installation. The Research Process results in greater flexibility and 15% greater tensile strength in the leather itself.

Research Belting is making short center drives (with or without idlers) and modern group drives even more economical. Not claims but facts from operating data in our files!

Our local power transmission man will be glad to help you uncover possibilities for similar savings in your plant. He will help you analyze your drive problems in the light of modern practice and the proved economies of Research Belting. Every recommendation he makes will be supported by performance facts. Write direct to Graton & Knight Company, Worcester, Mass.

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LEATHER BELTING

The new Riggs & Lombard Universal Sample Dye Kettle is equipped with the Lewellen Variable Speed Transmission

Instead of having various size Sample Dye Kettles, for different kinds and yardages of cloth, this Universal Sample Dye Kettle may be used for any length of sample from 2 to 45 yards. The Lewellen Transmission incorporated in the drive, makes possible any reel speed from 4 to 40, making this machine easily and quickly adaptable to approximately 100% of a mill's sample requirements.

The modern textile machine is truly modern when equipped with the Lewellen Variable Speed Transmission. Lewellen engineers will gladly work with you to modernize your machines by supplying accurate variable speed control.

Sign and return the coupon below and we will gladly send you our catalog and any additional information you may desire, without obligation.

Lewellen Manufacturing Co.
Columbus, Ind.

I would like your catalog of the Lewellen Variable Speed Transmission. I am interested in accurate variable speed control on.....

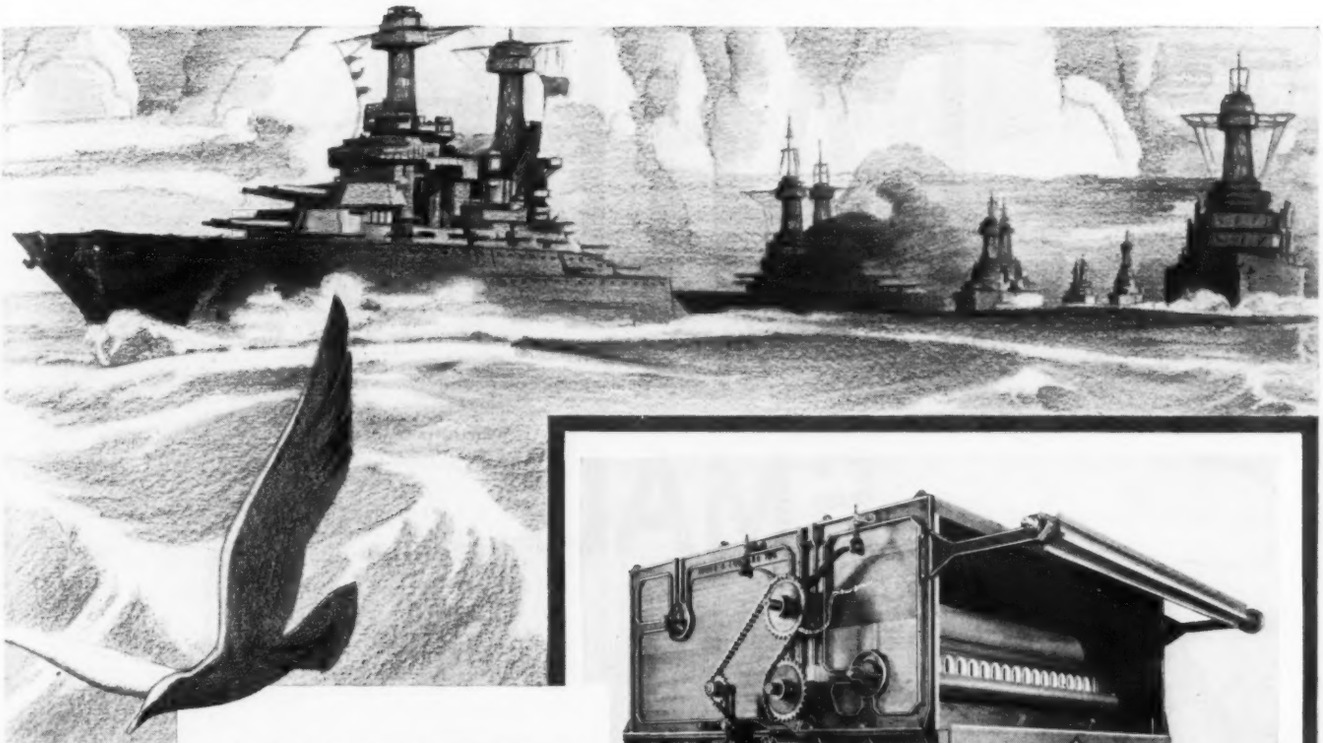
Name .....

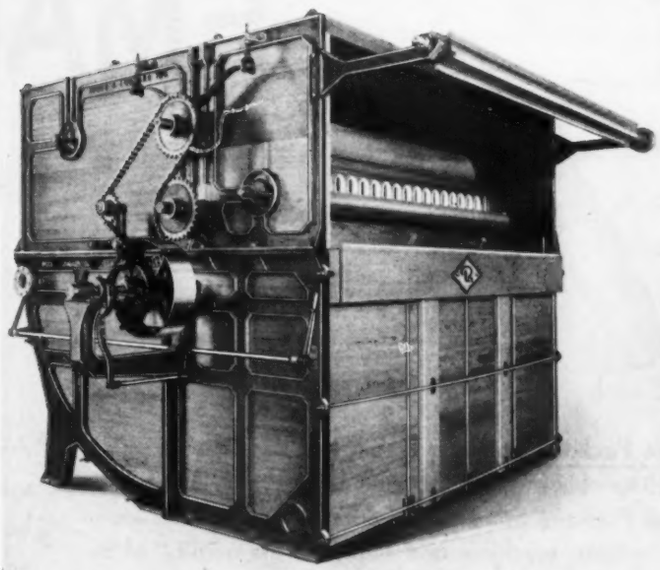
Company .....

Address .....

THE *Lewellen*
MANUFACTURING CO.
COLUMBUS . . . INDIANA

The Fleet Line





Cloth Washer

ANCHORS AWEIGH!

And full steam ahead for larger profits with the new Fleet Line Washer.

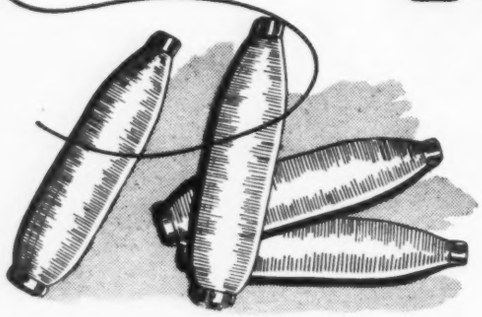
At a Central Mass. Mill one FLEET LINE Washer handles 20 pcs. per load, 4 sets per day, with no more labor than old style machines and with amazing economy in water consumption.

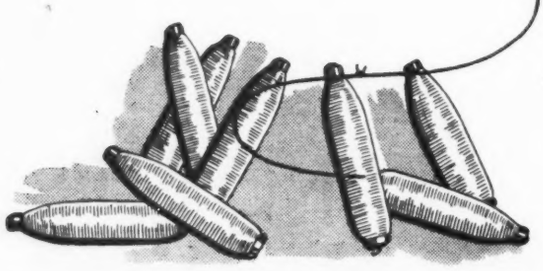
Demonstrations arranged.

RIGGS and LOMBARD Inc.

FOOT OF SUFFOLK STREET - LOWELL, MASS.

LARGE OR SMALL ?





Large Package Spinning means less knots—economical spooling—fewer loom or knitting machine stoppages. Large Package Spinning increases production on looms and knitting machines and improves the quality of finished textiles. If yarns are marketed, and have been spun on large package frames, salesmen have a real selling point.

Small Package Spinning is costly in both labor and in quality of product. There is no reason why it should be continued in progressive mills.

Any mill which is today considering the purchase of new spinning should thoroughly investigate the Whitin Model F Large Package Spinning Frame. This frame, when equipped with the Whitin-Casablancas Long Draft System, is the most economical and efficient machine yet devised for the spinning of cotton yarns. Full particulars, constructional features, cost, etc. will be gladly furnished, and a demonstration can be arranged by addressing our home office.

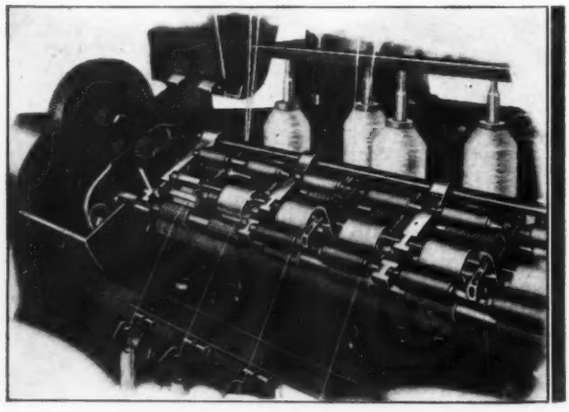
WHITIN MACHINE WORKS

ESTABLISHED 1831

Fales & Jenks Division
Woonsocket Machine and Press Division

Whitinsville, Massachusetts, U. S. A.

Charlotte, N. C. Atlanta, Ga.



NEWS

a LOW TENSION Rubber Belt

Compensated

PAT. APPLIED FOR

Manhattan engineers — the originators of Condor Belts — announce a new advanced type of transmission belting — the Compensated Belt.

Due to its special, compensated features (patents applied for), the belt performs best at 50% *lower* tension — resulting in longer bearing life, smooth and trouble-free running, and double the overload capacity of standard rubber belt.

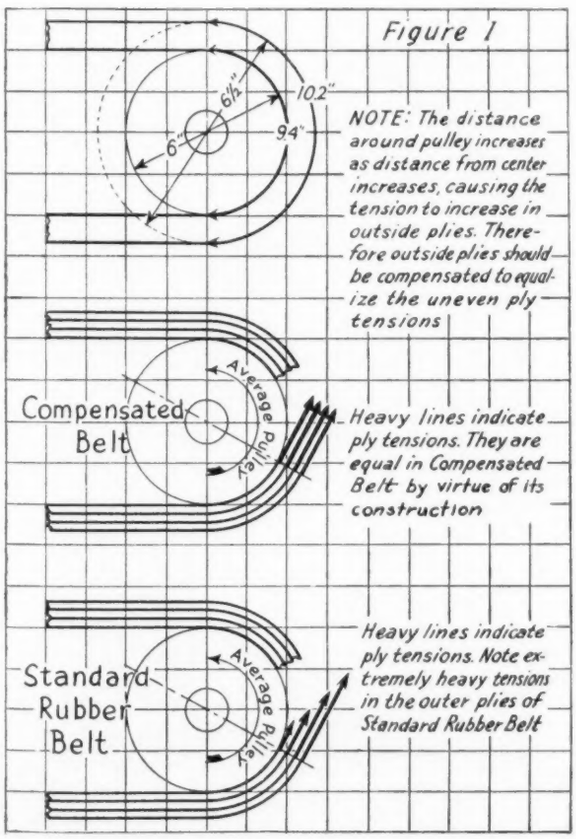


Figure 1
6½"
10.2"
9.4"
6"
NOTE: The distance around pulley increases as distance from center increases, causing the tension to increase in outside plies. Therefore outside plies should be compensated to equalize the uneven ply tensions
Compensated Belt
Average Pulley
Heavy lines indicate ply tensions. They are equal in Compensated Belt by virtue of its construction
Standard Rubber Belt
Average Pulley
Heavy lines indicate ply tensions. Note extremely heavy tensions in the outer plies of Standard Rubber Belt

These diagrams are self-explanatory—study carefully

We cannot urge you too strongly to investigate fully the Compensated Belt. We firmly believe industry will soon acclaim it, as many experts are now doing, as the greatest single advancement in rubber belt construction yet announced.

Your jobber can supply you

10 Advantages of Compensated Belts

1. Longer fastener life.
2. Higher efficiency when run slack.
3. Higher efficiency on small pulleys.
4. Freedom from ruptures in outside ply.
5. Freedom from wear on pulley side.
6. Freedom from ply separation.
7. Double the overload margin of safety.
8. Higher efficiency under all running conditions.
9. Reduced bearing, shafting, and hanger troubles.
10. Material reductions in belting "costs".

The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Executive Offices and Factories, Passaic, New Jersey

A REVOLUTION

Your present manufacturer can have your spinning rings *Chapmanized* in the process of manufacture. You'll get longer life, better yarn from *Chapmanized* rings—try them.

IN SPINNING RING PERFORMANCE

Without a penny additional cost on your part . . . direct from the manufacturers you now do business with . . . you can get spinning rings that not only produce evener yarn, but save you a sizable sum of money yearly. When you send your order for rings to the manufacturer, simply write on it—"Please have these parts *Chapmanized.*"

Chapmanizing is a new hardening process for steel, now being used by many manufacturers. It revolutionizes hardening methods. When used on spinning rings by the manufacturers who supply it, *Chapmanizing* provides a harder surface, more resistant to abrasion. It permits a higher, smoother polish than you can get in ordinary rings. Careless installation of travelers often breaks the flanges on spinning rings—*the flanges will not break if the rings have been Chapmanized!* As the rings are used, the polish is heightened by the action of the travelers, because there are no soft spots in a *Chapmanized* part. This means better traveler action and evener yarn. Longer life, too. Another important point—*Chapmanized* rings are true in form and size. Your machinery runs smoother, produces better yarn.

MILL MEN:

We do not manufacture spinning rings . . . Order direct from your present manufacturer, but specify *Chapmanized* rings . . . they'll change your ideas on spinning ring life and performance . . .

We do not manufacture or sell spinning rings. Order from your present source of supply—but remember to specify *"Chapmanized* Spinning Rings" on the order. Write for booklet which tells further how this process, applied to spinning rings, saves money and improves quality.

Textile maintenance parts such as pins, rivets, clips, pig tails, bushings and in fact all moving parts subjected to excessive wear can be Chapmanized. Send us a few for sample treatment.

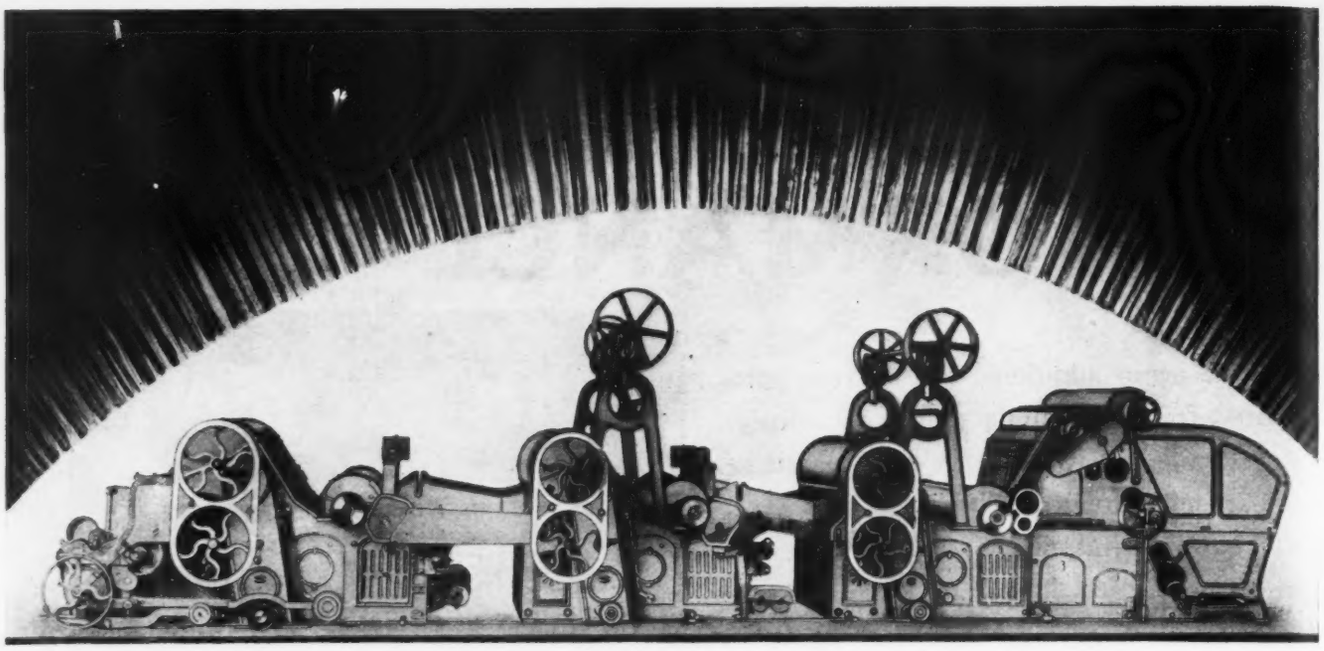
Simply write ——————

Chapmanized

——————*on your spinning ring orders*

THE CHAPMAN VALVE MFG. CO.

Indian Orchard, Mass.



Photograph of Picking Equipment installed in 1916 and converted into H & B A-1 One-Process System in 1932.

H&B A-1 ONE-PROCESS PICKER

FOR some time past the entire resources of our engineering staff and picker department have been applied to the investigation and the creation of a new line of opening and cleaning machines on the Single-Process System. Our new A-1 One-Process System is the result.

Here is a real response to the demand for reduced costs with increased efficiency, both for new machinery and the converting of existing equipment. It means—

1. Greatest Lap Regularity, Yard per Yard.
2. Reduced Labor Costs.
3. Saving in Power.
4. High Productive Capacity.
5. Increased Efficiency.
6. Variable Speed Control.

Let our engineers tell you how this new system can be put into operation—for you.

H & B AMERICAN MACHINE CO.

PAWTUCKET, RHODE ISLAND

BOSTON OFFICE
161 Devonshire Street

ATLANTA OFFICE
815 The Citizens & Southern Nat. Bank Bldg.

COTTON PREPARATORY AND SPINNING MACHINERY

To produce needles as nearly perfect as possible is the business of this company . . . needles that do a maximum of work, cause a minimum of trouble. And for this job, we see more and more the value of *mechanical* control. We rule out the "by hand" element . . . the chance of variations. Torrington needles are made by machines . . . smooth-running, untiring, true; and so these needles are *precise.*

Send your bars to the Torrington branch at 1640 Fairmount Avenue, Philadelphia, for a complete re-needling service

TORRINGTON *SPRING BEARD* **NEEDLES**

A Banner Wrap Stripe machine from the Hemphill Company.

Half-hose by the Wovenright Knitting Company.

"BY THE COMPANY THEY KEEP"

Association tells a significant story of Torrington needle reliability. Here are attractive half-hose by Wovenright . . . made on a Hemphill machine . . . and the needles used were Torringtons. The needles, the machine, the product all pay each other the compliment of "good company".

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

BRANCHES:

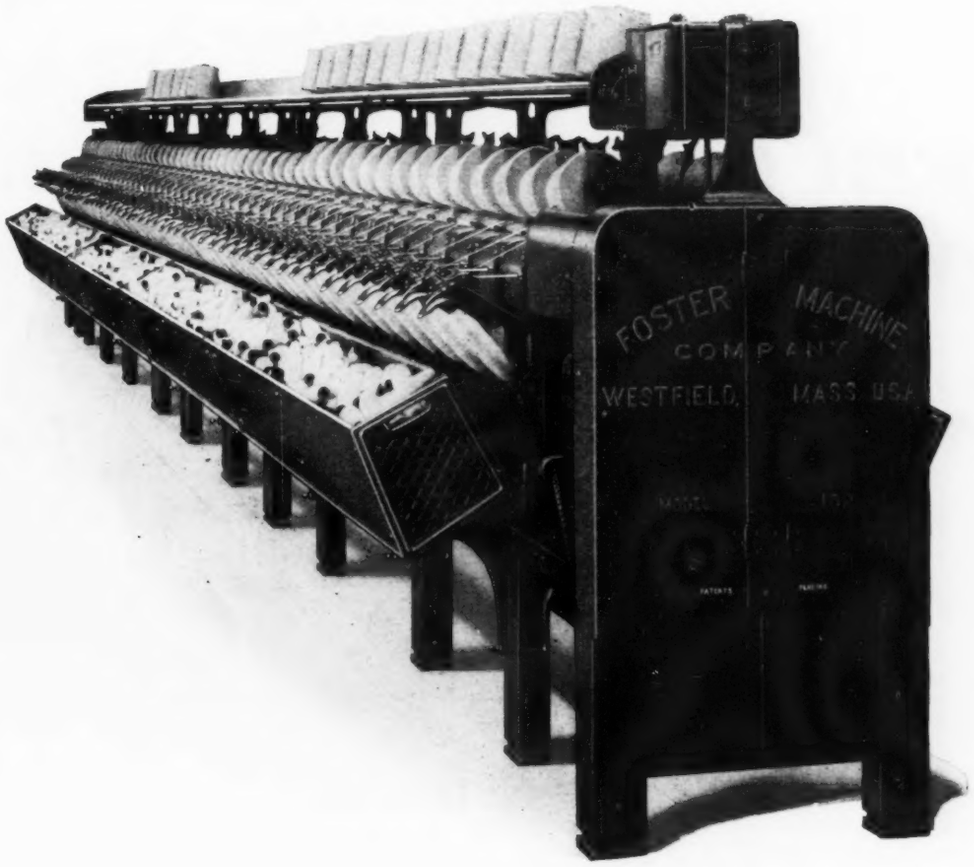
THE TORRINGTON COMPANY,	1640 FAIRMOUNT AVE.,	PHILADELPHIA
THE TORRINGTON CO., INC.,	140-144 W. 22ND STREET,	NEW YORK, N. Y.
THE TORRINGTON COMPANY,	19 W. JACKSON BLVD.	CHICAGO, ILLINOIS
THE S. M. SUPPLIES CO.	210 SOUTH STREET	BOSTON, MASS.
LOS FABRICANTES UNIDOS,	964 CALLE BELGRANO,	BUENOS AIRES

FACTORIES AT:

TORRINGTON, CONN. , UPPER BEDFORD, QUEBEC
COVENTRY, ENGLAND , AACHEN, GERMANY

TORRINGTON *Latch* NEEDLES

FOSTER CONE WARPING



FOSTER Model 102 Cone Winder

Cone winding is the Key Process of the Cone Warping System. The Model 102 cone winder draws yarn from the spinning bobbin at high speed, producing cones that on fine numbers measure up to 200,000 yds. The Model 102 produces a cone package of this great yardage in an unbroken strand, unwinds over end in the warping process without variation in "cone drag" and transfers from the empty cone to the companion full cone at top warper speed.

Quality cloth, reduction in loom stoppage, saving on slasher waste, elimination of costly spools and stale yarn spool waste are some Foster Cone Warping *Credits.*

DESIGNED AND BUILT BY

CONE WINDING SPECIALISTS

Foster Machine Company

WESTFIELD, MASS.

Continuity of Process

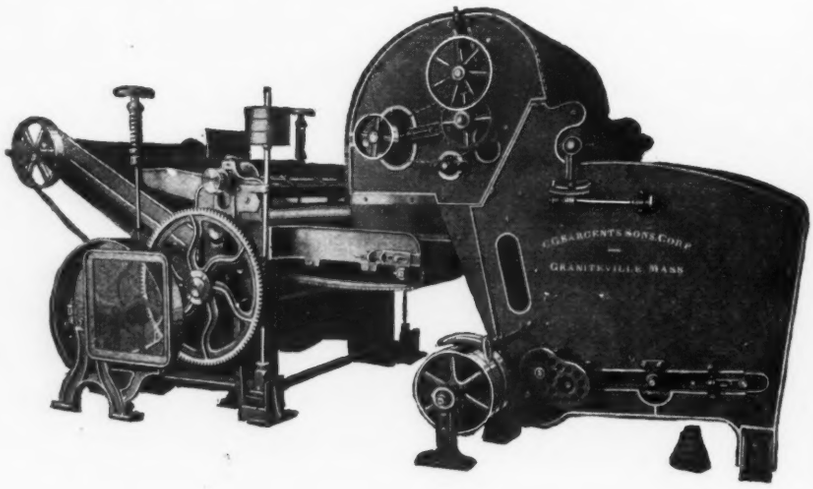
the Key to

REDUCED OPERATING COSTS

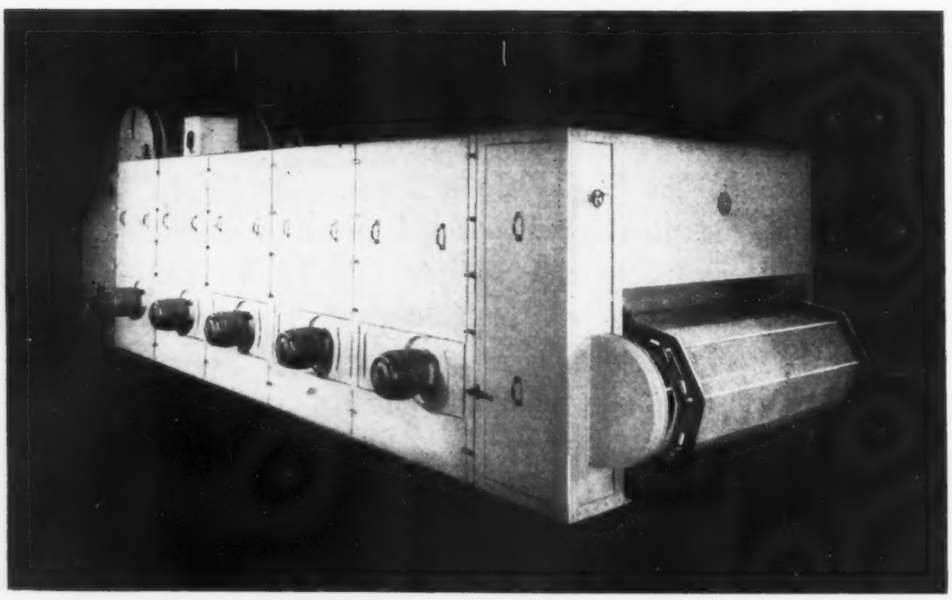
SARGENT'S CONTINUOUS AUTOMATIC EXTRACTOR

and

The New 1932



SINGLE APRON DRYER



Also Manufacturer of

Acidifying machines . . Automatic Extractor Machines . . Automatic Feeders . . Back Washers . . Back-Wash Dryers . . Bagging Machines . . Ball Winding Machines . . Carbonizing Dryers . . Cloth Dryers . . Carbonizing Dusters . . Cotton Stock Dryers . . Crush Roll Machines . . Press Roll Machines . . Single Apron Dryer . . Skein Dryers . . Special Dryers . . Wool Drying Machines . . Wool Washing Machines . . Yarn Conditioning Machines . . Yarn Scouring Machines.

C. G. SARGENT'S SONS CORPORATION

Founded 1852

GRANITEVILLE, MASSACHUSETTS

Southern Agents

FRED H. WHITE, Charlotte, N. C.

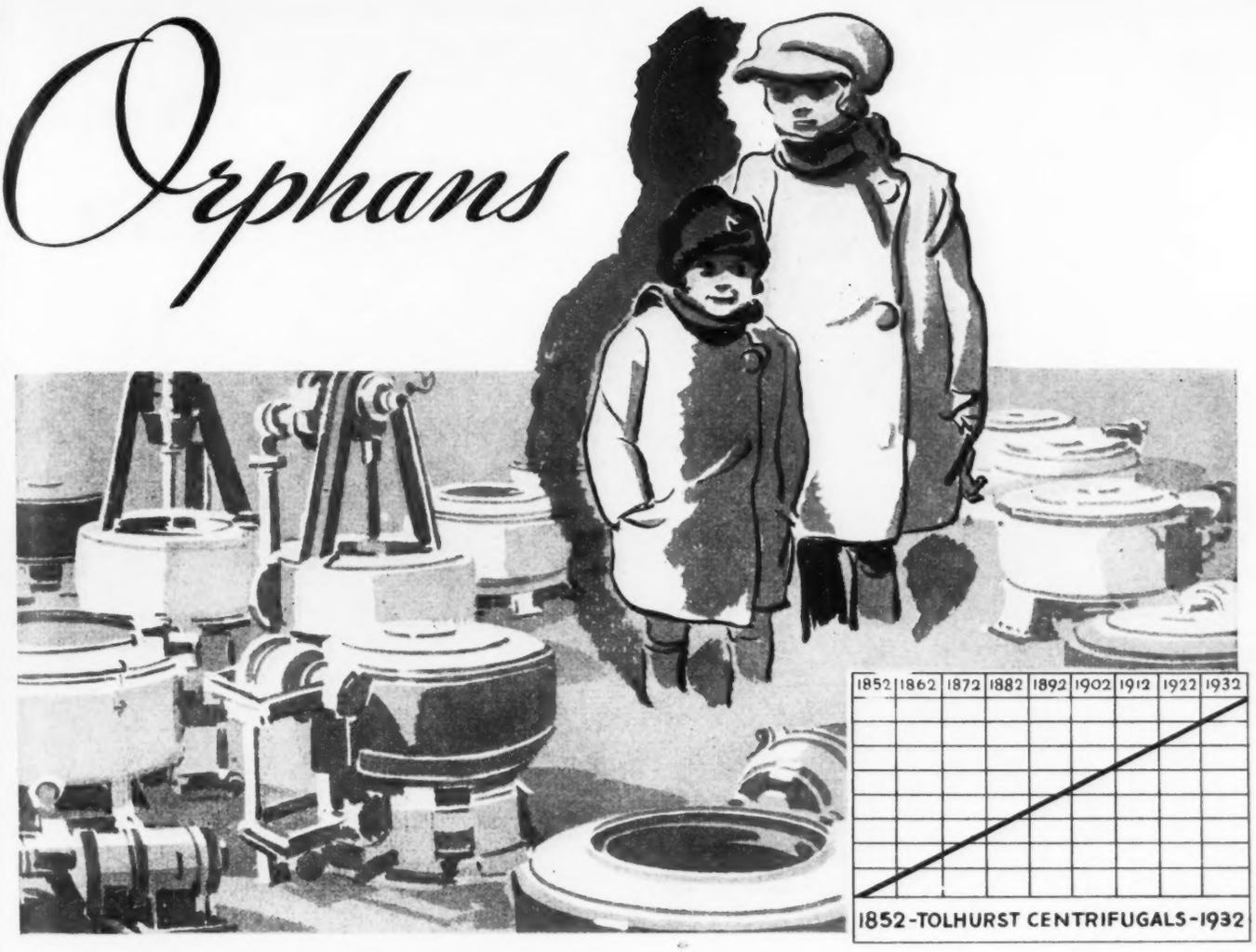
FRED P. BROOKS, Atlanta, Ga.

Philadelphia Agent

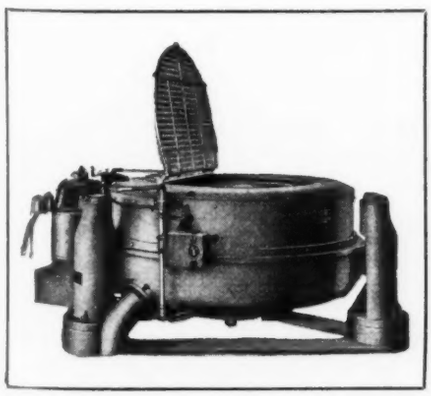
R. C. JEFFERSON COMPANY

640 Drexel Bldg., Philadelphia, Pa.

Orphans



Avoid "Orphan" Machinery in Buying Process Equipment

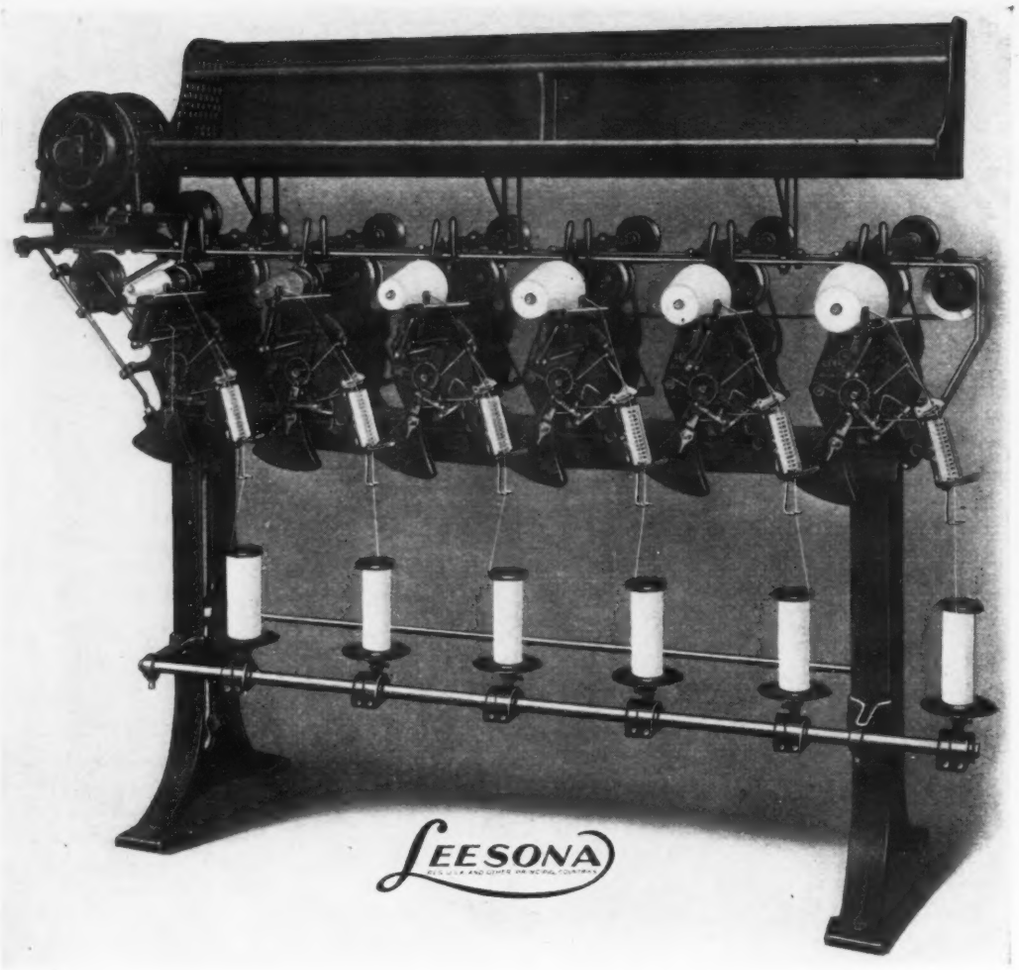


Price, servicing, mechanical advantages—all these are of little worth to the buyer of any centrifugal if the maker should cease his manufacturing activities before the machine has outlived its productive period.

Tolhurst's eighty-year record of specialization in centrifugal construction is a Tolhurst owner's guarantee that the faithful functioning of his machine will remain under the guardian eyes of Tolhurst.

To specify Tolhurst is to play safe . . . now *and in the years to come!* Tolhurst Machine Works, Inc., Troy, N. Y. Sales Offices: New York City, Chicago, Detroit, San Francisco.

TOLHURST
REG. U.S. PAT. OFF.
CENTRIFUGALS
TOLHURST MACHINE WORKS, INC. ESTABLISHED 1852, TROY, N.Y.



No. 150 MACHINE

This machine is built on the model of the No. 50 Machine, but with heavier fittings and for a wider range of work.

It is especially adapted for handling ply yarns.

All working parts are built for long service and durability.

UNIVERSAL WINDING COMPANY

BOSTON

333

UNIVERSAL WINDERS

Are you SAVING *to Lose?*

● The biggest textile operators in the country (you know who they are) have found in the consistent use of ALEMITE HIGH PRESSURE LUBRICATING SYSTEMS plus GENUINE ALEMITE LUBRICANTS savings so great that they would not under any consideration return to former slip-shod methods. » » » The money you "save" on buying shoddy lubricants is quickly LOST in spoilage, breakdowns and repair bills. » » » Where is there any logic in that kind of "saving"? » » » The savings made possible in your mills through a strict program of Alemite-ing are so great as only to be believable when you see them with your own eyes. » » » A word from you will bring a demonstration in your own plant of savings so convincing that you will not need to be asked to buy!

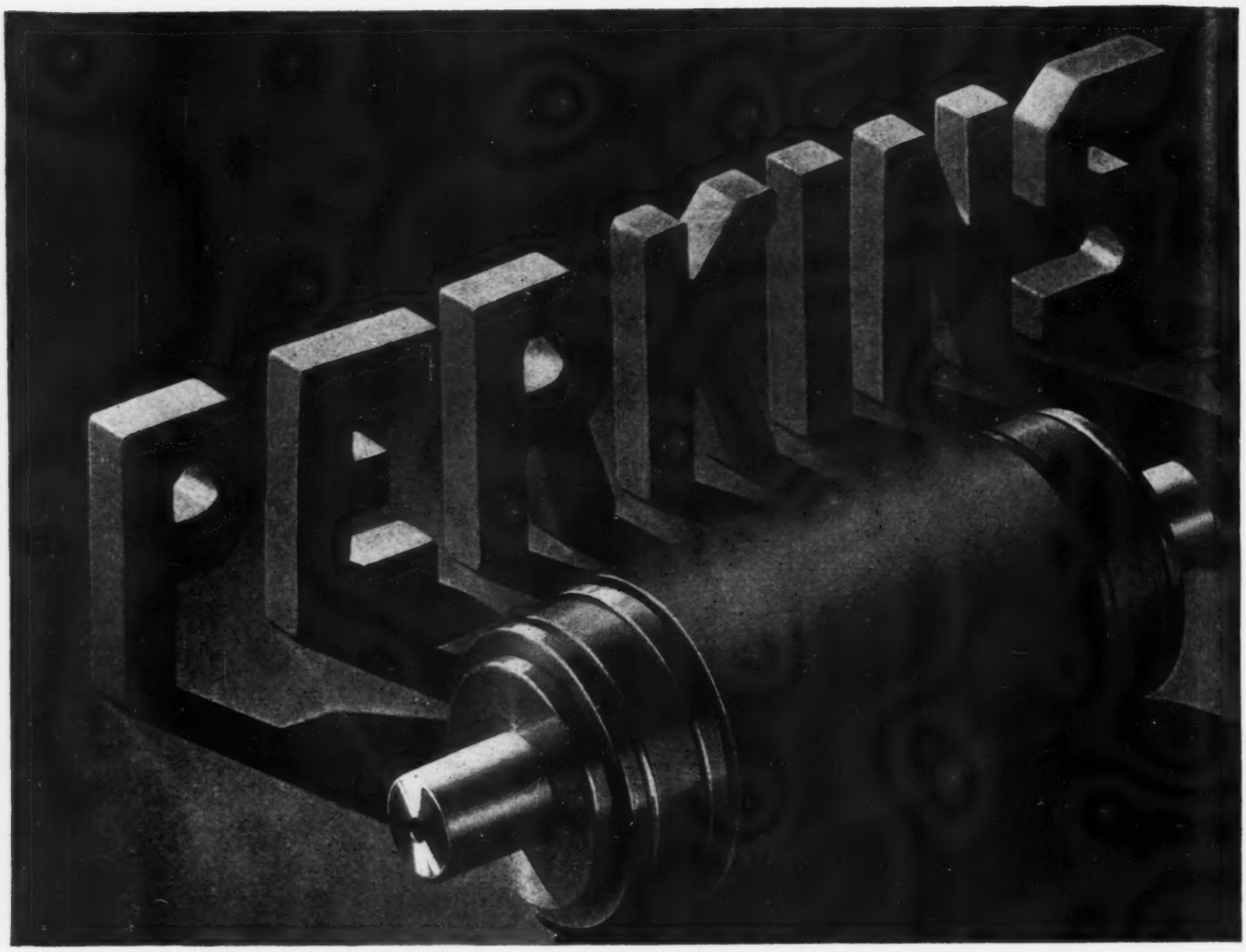
ALEMITE CORPORATION, (Division of Stewart-Warner) 661
2690 N. Crawford Avenue, Chicago, Illinois
Gentlemen: I am interested in information leading to the reduction of costs through proper lubrication.

Name.....

Company.....Address.....

City.....State.....

PIONEERS IN SPECIALIZED LUBRICATION FOR INDUSTRY



A PRODUCT with a BACKGROUND

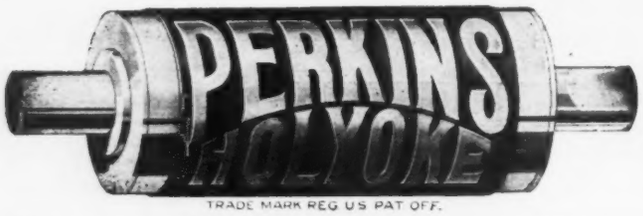
NO CALENDER CAN BE BETTER THAN THE ROLLS IN IT

The superior finishing qualities of Perkins Calender Rolls are the natural result of the longest experience in the highly specialized art of making calender rolls.

Refills and remakes include the rolls of any manufacture, domestic or foreign, for any application in the textile industry.

B. F. Perkins & Son, Inc., Holyoke, Mass.

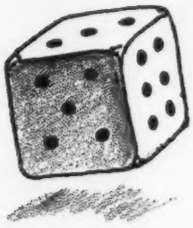
Engineers and Manufacturers

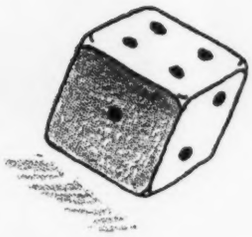


TRADE MARK REG US PAT OFF.

Rolls — Cotton, Paper, Husk, Combination, Cotton and Wool

Calenders	Dyeing Machines	Singers
Drying Machines	Mullen Testers	Squeezers
Starch	Padders	Tenters
Water and Tommy	Ranges	Washers
Dodd Mangles	Scutchers	Winders





Is it worth the GAMBLE ?

EVEN the most hardened gambler will steer clear of loaded dice . . . When you begin to use cheaper lug straps, the dice are loaded against you. Stop and consider for a moment what you stand to gain. And what you stand to lose . . . You can save a few cents on each lug strap. But lug straps are a small item of replacement on the loom. Your yearly expenditures for lug straps are comparatively small, and your savings per year cannot amount to much money . . . On the other hand, cheaper lug straps can and do affect the operation of looms. They increase weave room costs by an important margin. In short, you run the risk of loss that far overshadows any possible saving . . . It is a wise economy to use the best lug straps that money can buy . . . JACOBS Lug Straps and Loom Necessities are backed by 63 years of experience. JACOBS initiated and developed every major improvement in lug straps ever made. Our "Reinforced Verybest", "Pick Arm", "Reinforced Roller Cushion", and "Roller Cushion" Lug Straps are now reinforced at points of greatest stress and wear . . . JACOBS Lug Straps have the approval of loom builders the world over. Buy from your regular supply house or write direct for catalog.

E. H. JACOBS MFG. CO.

Danielson » » » Conn.

Jacobs
Loom Necessities

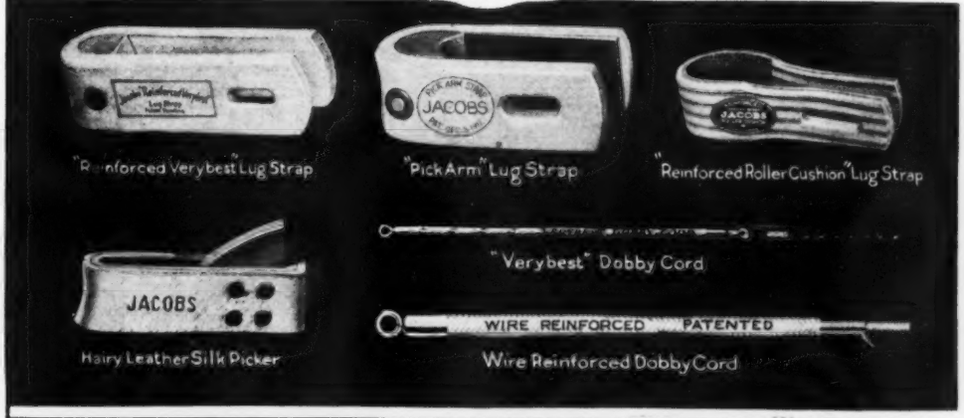
LUG STRAPS

JACOBS "Reinforced Very Best"
JACOBS "Pick Arm"
JACOBS "Reinforced Roller Cushion"
JACOBS "Special," "Star" Duck and Ticking
JACOBS "Roller Cushion"
JACOBS Canvas and Leather Hold-Ups

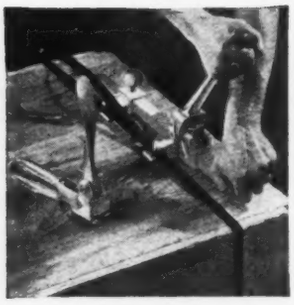
PICKERS

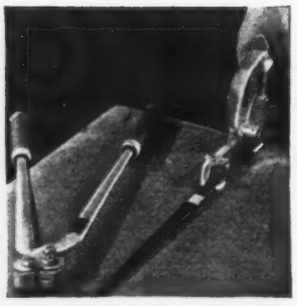
JACOBS "Verybest" Leather Silk Pickers
JACOBS Hairy Leather Silk Picker
JACOBS Leather Loop Pickers
JACOBS Canvas Box Pickers
JACOBS XXCY "Jersey Oak" and "Surpass" Doll Pickers
JACOBS "Verybest" and "Spot" Dobby Cords
JACOBS Wire Reinforced Dobby Cords
JACOBS Leather Loom Strapping

JACOBS
VERYBEST
LOOM SUPPLIES
SINCE 1869



ACME





Bale and Box Strapping Equipment

Acme Steel Company has served the textile industry conscientiously and well for nearly a half century with their requirements for bale tie band and box strapping. No stone has been left unturned in the development of new equipment, in co-operation with the mills, to advance the science of better and more economical packing. . . . . Let us help you with your packing problems. Our representatives, working out of branches listed below, are at your service. . . . . Call on them—or the whole Acme company.

ACME STEEL COMPANY

General Offices 2832-40 Archer Ave., Chicago SAVE WITH STEEL *Branches and Sales Offices in Principal Cities*

BROOKLYN, N. Y. ATLANTA, GA. CHARLOTTE, N. C. NEW ORLEANS, LA.

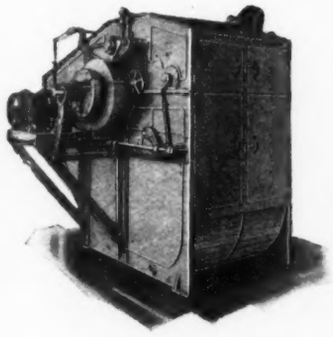
STEEL

New In Principle and Design

HUNTER

All Metal and Metal-Clad Finishing Units

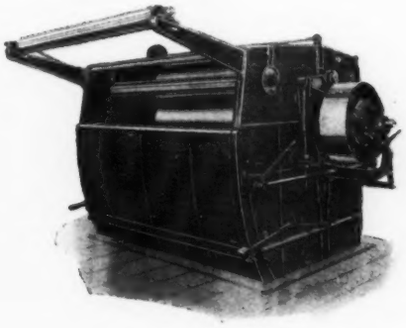
The three units pictured below—the Hunter All Metal Dye Tub, Iron Clad High Production Fulling Mill, and the Hunter Model H Iron-Clad Washer—are revolutionary in principle and unique in design. They are machines no up-to-date mill can afford to be without unless they are willing to sacrifice the obvious advantages of greater output per machine, reduced labor, greatly improved quality and complete elimination of repairs. Proved operating facts and figures are available through Hunter Engineers—data that tells you exactly why and how these truly different units save money for you.



An Iron-Clad Fulling Mill

That Does the Work of 2 to 4 Fulling Mills

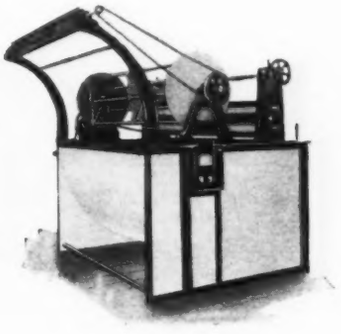
Developed in 1930 and brought to its present point of perfection in 1931, Hunter Iron-Clad Mills represent the century's outstanding advance in Wet Finishing. Installed in many outstanding woolen and worsted mills, these Iron-Clad Cypress Lined machines are not only drastically cutting fulling time, but they are giving a more uniform quality of felting. They do the work of 2 to 4 wooden mills and do it quicker and better. They afford complete mechanical control of shrinkages and an easy means of duplicating any desired result. A size for any fulling requirement.



The Iron-Clad Washer

Saves 30 to 60 Minutes Per Set

Number two in Hunter's equipment development plan was the Iron-Clad Cypress Lined Model H Washer employing every known modern device for improved operation. A New Hampshire Mill scouring 18 oz. woolens saves 1 hour's scouring time per 6 string set. A Canadian Mill on heavy scoured goods saves 30 minutes per set. In brief, the Model H Iron-clad Washer offers you faster and cleaner washing, elimination of repairs, and operating adjustments that can be made while the Washer is in operation. In other words, the Model H is in tune with the times-faster washing at lower cost.



A Solid Metal Dye Kettle

Stain-Proof, Leak-Proof, Wear-Proof

The newest Hunter development is the Solid Metal, Nickel-Clad Steel, Stain-Proof and Leak-Proof Hunter Piece Dye Unit. A fit companion unit to the Hunter Iron-Clad Mills and Washers. No wood to rot or replace. No corrosion, no chipping, no flimsy metal lining to buckle and leak. No need for boiling out when changing colors; a thorough rinse and you are ready for the next set. A few additional advantages; impervious to ordinary dyes, equipped with pure nickel main reel, and delivery reel, handwheel adjusted 10" rubber squeeze rolls, heavy duty roller chain, splash guards, etc. Truly a Kettle for lower dye house costs. Full price data on request.

James Hunter Machine Company

Founded 1847 NORTH ADAMS, MASS.

No water left on the floor..

— to soak into the floor
— to discolor the surface
— to deposit dirt
— to cause slips and falls

WITH THIS 2 IN 1 MACHINE

This amazing combination *Finnell* scrubs any floor area, and in virtually the same operation picks up the dirty water, before it has a chance to settle. It digs down into cracks and depressions and removes all trace of dirt and grease. Read part of a report by a well-known mill in New Hampshire:

"Since the No. 90 *Finnell* has been used . . . there has been no excess water on this floor because the *Finnell* picks up the dirty water immediately and leaves the floor absolutely clean. The high speed brushes also get out all imbedded dirt, whether or not the floors are uneven."

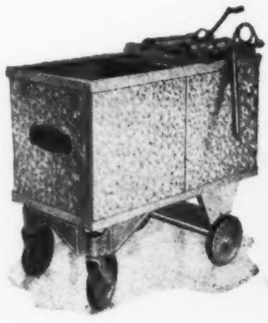
Three times faster

At this mill, one man used to clean 36,000 square feet in a 45 hour week—sweeping, moving tables, and scrubbing with pail, brush and mop. Now, with a *Finnell* No. 90, he scrubs more than 46,000 square feet in less than 20 hours, thus covering three times as many square feet per hour, and doing a far better job.

Furthermore, this mill reports, "We believe that clean surroundings have a good effect on the quality of work turned out by our employees."

There are nine sizes of the *Finnell* Scrubber—20 sizes of *Finnell* equipment. There are *Finnells* that will easily reach under looms and spinning frames and will scrub any width alley.

Ask for Survey. In the interests of efficient production, sanitation and accident reduction, write for particulars. Ask us to make a free survey of your floors and submit a method that will cut overhead in your plant by cutting floor cleaning costs. Address FINNELL SYSTEM, INC., 1912 East Street, Elkhart, Indiana.

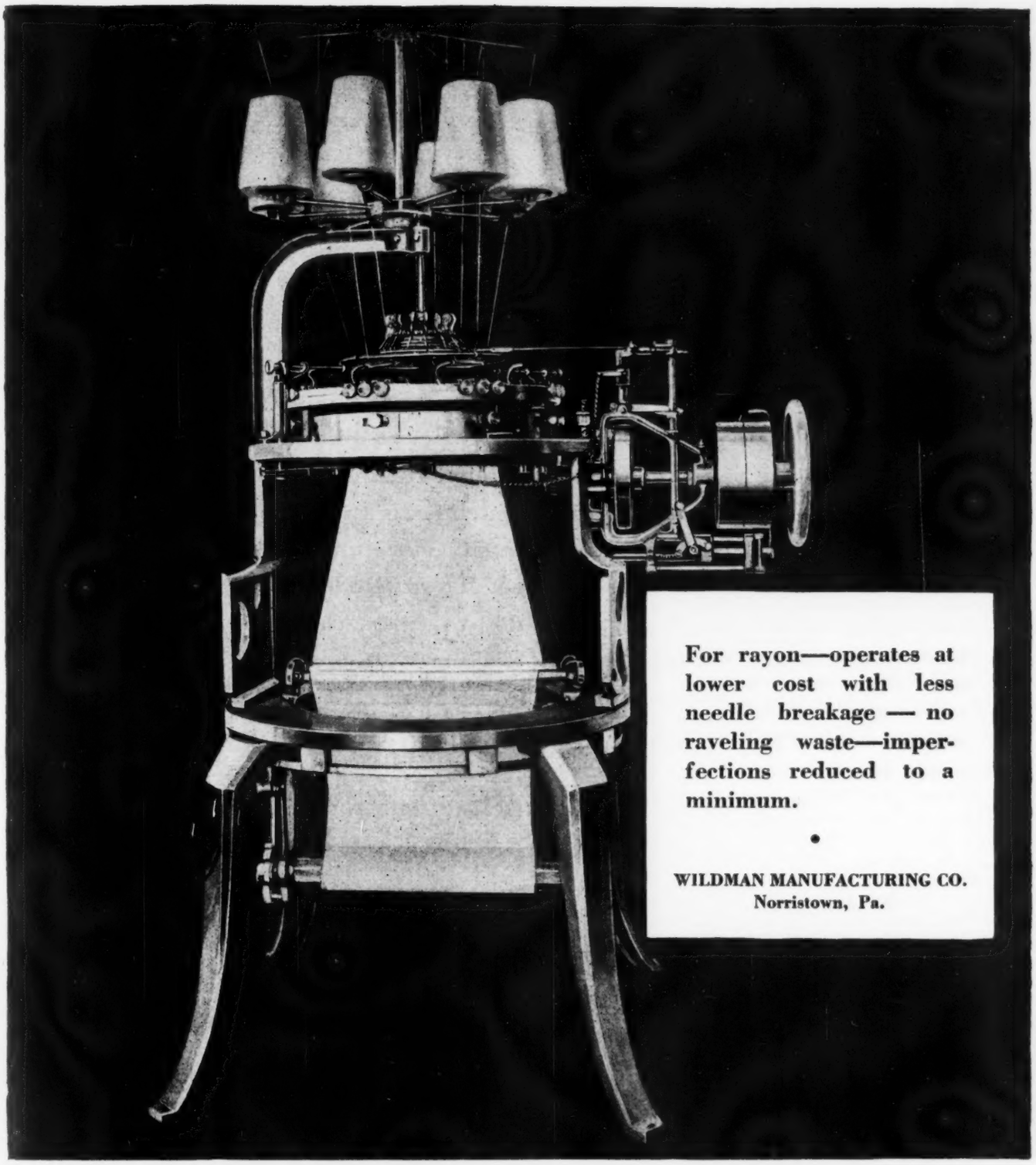


The Finnell Mop Truck keeps dirty water and clean water in separate compartments. The water absorbed from the floor is wrung into one compartment. The mop is then rinsed in the clean water in the other compartment before being applied to the floor again.

FINNELL

Est. 1906

ELECTRIC FLOOR SCRUBBER-POLISHER



For rayon—operates at lower cost with less needle breakage — no raveling waste—imperfections reduced to a minimum.

•

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
SPRING NEEDLE BODY MACHINE

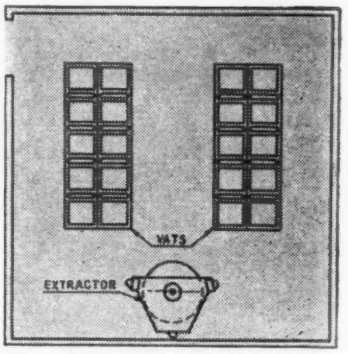
WILDMAN
THE WORLD'S STANDARD

$20 A DAY

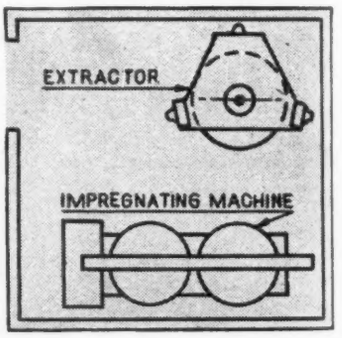
SAVED

If you're soaking twenty *bales* a day, one American Silk Impregnator will save you twenty *dollars* a day! It saves *a dollar a bale* on soaking solution. It works much faster than ordinary soaking tubs. It impregnates the silk more uniformly, and simplifies follow-up processing. If you handle five bales a day or more, it will pay you to do two things. (1) Write for free booklet, "The *How* of Silk Soaking." (2) Ask us to have our textile specialist bring you all the facts on the American Silk Impregnator.

SILK SOAKING AS IT IS TODAY

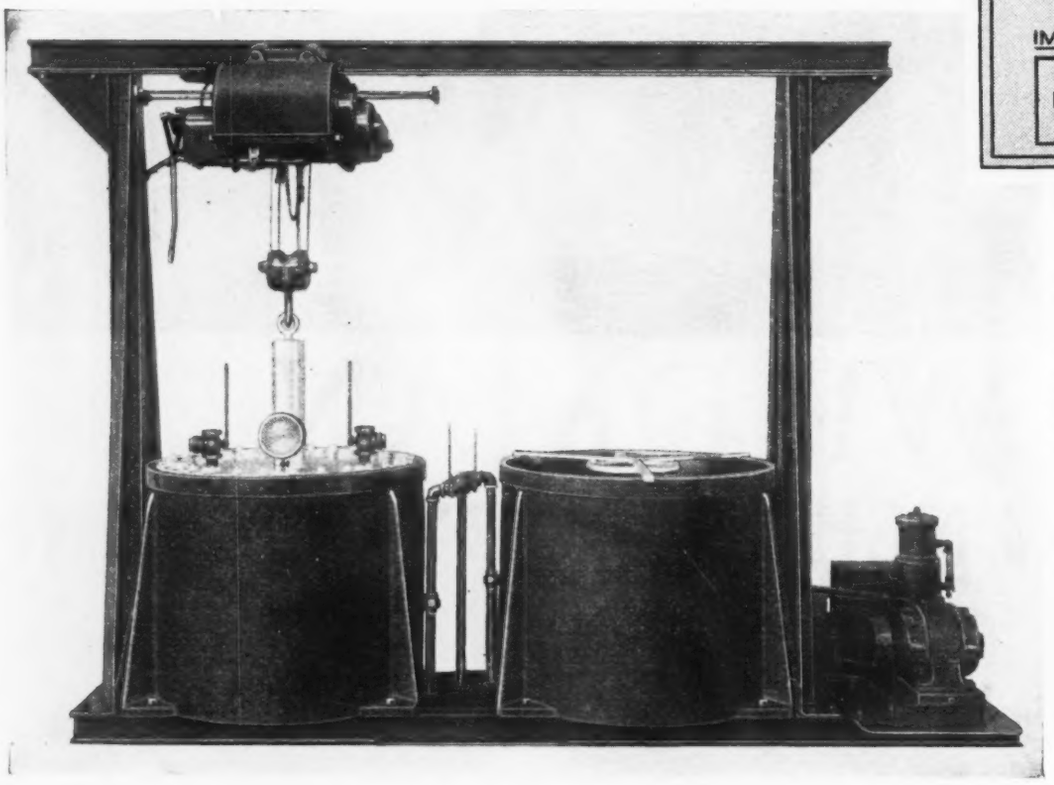


AND HOW IT CAN BE MADE TO SHOW BETTER PROFITS

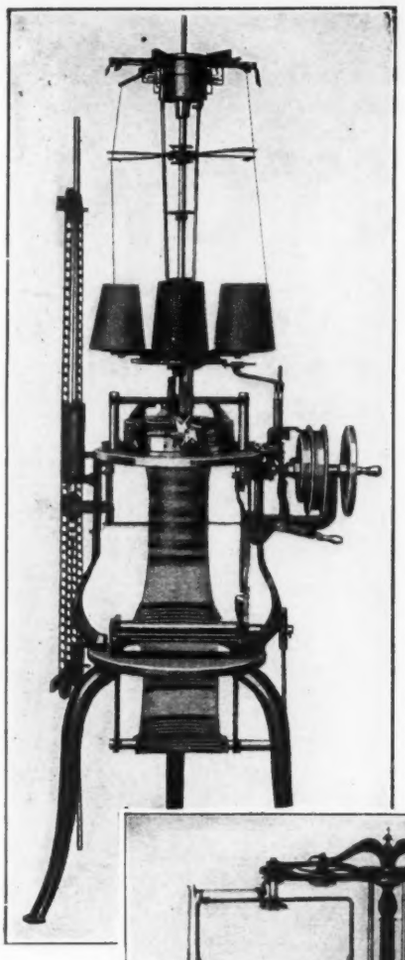


THE AMERICAN LAUNDRY MACHINERY COMPANY

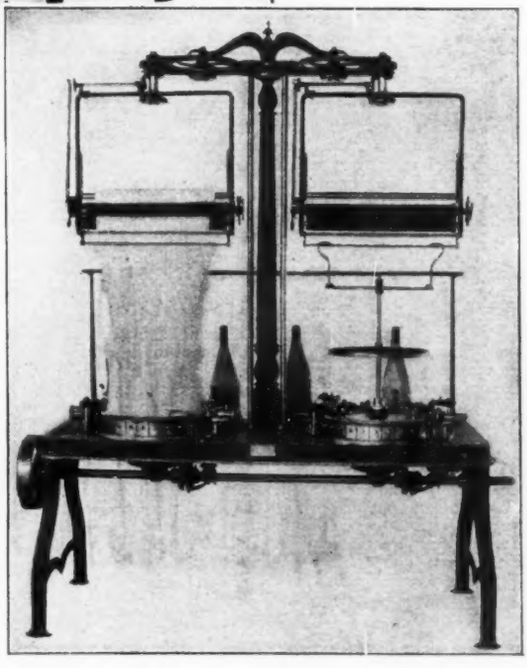
CINCINNATI, OHIO



The American (patent-protected) Two-Tank Double-Unit Silk Impregnator, showing impregnating tanks, vacuum pump unit, hoist and spray head. A new-day vacuum method that insures thorough impregnation throughout entire skein.



CRANE knitting machines are the logical answer to the problem of obsolescence . . . they combine modern speed . . . dependability . . . quality of goods . . . and low cost



Above

Improved Automatic 3-Colored Plain Striper

Made in sizes from 7⅛ in. to 20⅛ in. inclusive, of any desired gauge; these measurements being back to back of cylinder needles. The fabrics from this machine are used for bathing suits, theatricals and athletic goods. These machines are second to none on the market. The Crawford stop-motion is applied when requested.

At Left

Spring Needle Underwear Machine with Automatic Take-Up

This machine is made in sizes from 10 in. to 36 in. in diameter for the production of a great variety of fabrics of any desired gauge, the number of feeds depending on the size of the cylinders. Aside from the feeds for plain fabrics the stockinet, eiderdown and astrachan feeds are superior to any on the market.

Some Exclusive Crane Features

Patent removable hardened Wing Burr Wheels. Patent Thread Stop Motion can be fitted to all sizes of machines, and are specially adapted for making fine Jersey Cloth and Stockinet. Our flat machine is adapted for knitting collarettes.

Write for full details . . . better still, let us send a Crane representative

CRANE MANUFACTURING CO.

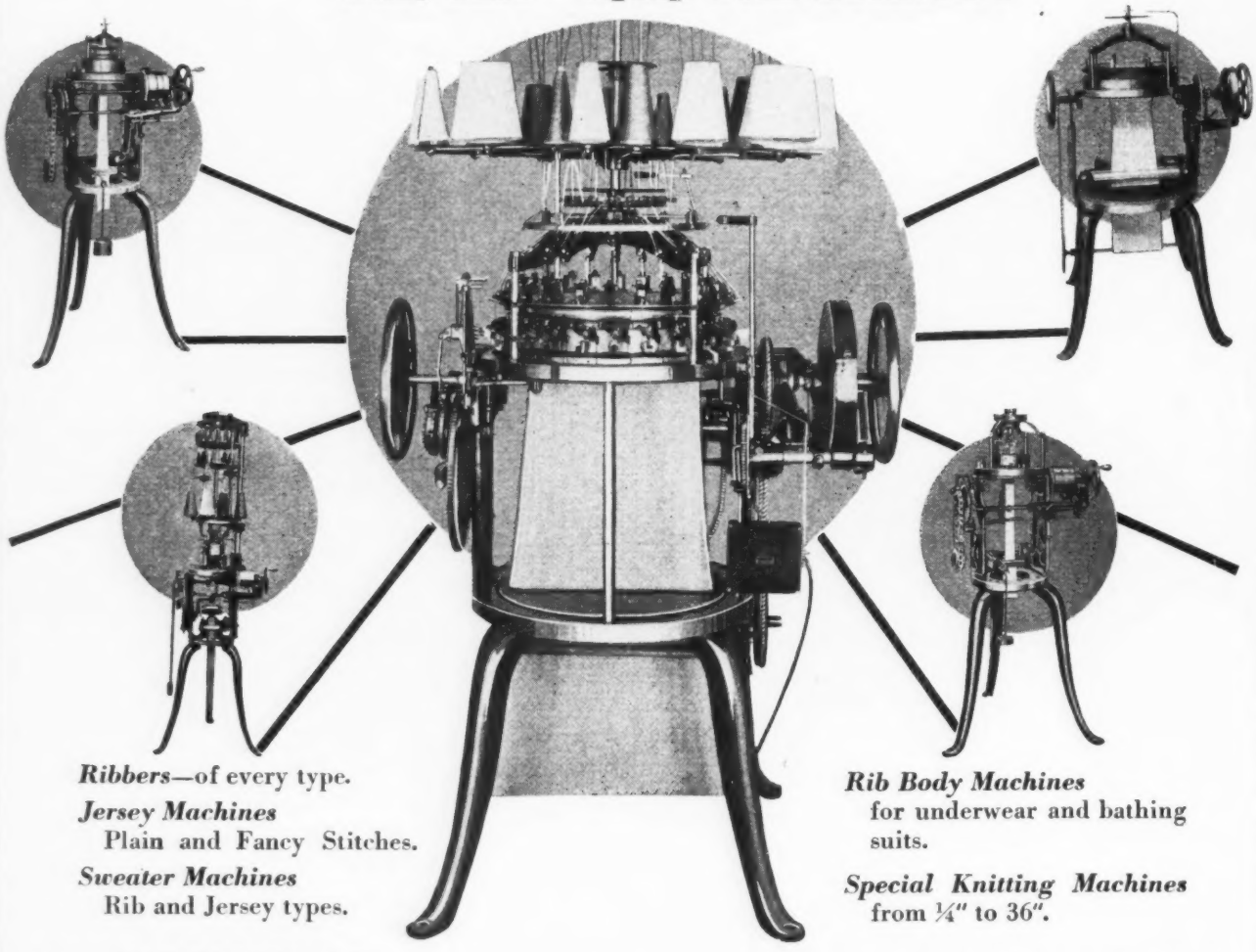
Lakeport, N. H.

CRANE *Spring and Latch* **Needle Knitting Machinery**

Lower production costs with BRINTON

Thousands of Brintons have had an enviable service record, for years, in many of the most successful mills in the country. Place your faith and hope of profits in Brinton Knitting Machines. They are dependable and reliable. Why install unknown quantities in your Mill and inherit all kinds of unknown troubles?

Play safe—equip with Brinton's



Ribbers—of every type.

Jersey Machines
Plain and Fancy Stitches.

Sweater Machines
Rib and Jersey types.

Rib Body Machines
for underwear and bathing suits.

Special Knitting Machines
from ¼" to 36".

H. BRINTON COMPANY

3700 KENSINGTON AVE. PHILADELPHIA

CIRCULAR KNITTING MACHINES

BRINTON

It Finds
NEW
Customers

THE BIGGEST EVENT of the KNITTING INDUSRTY

It Keeps
OLD
Customers

The Twenty-Ninth Annual

KNITTING ARTS EXHIBITION

April 24, 25, 26, 27, 28, 1933

Commercial Museum
Philadelphia

It Builds
Solidly
For
The Future

Under the Auspices
NATIONAL ASSOCIATION of
HOSIERY and UNDERWEAR
MANUFACTURERS

It Insures
Good
Opinion of
Your Products

This exhibition and convention is, without exception, the greatest institution for constructive, forward-looking progress in all the Knit Goods Trade. It has definite functions which it performs, completeness and efficiency that stamps it, among buyers and sellers, as indispensable to the industry.

The Commercial Museum is transformed into a vast market place where buyers congregate from all parts of the United States and Canada. Exhibitors present these buyers with instructive, profitable and business-getting displays of every conceivable variety of equipment, product or service used in the thousands of knitting mills and factories.

It Keeps
Your Name
Familiar to
The Trade

▲
It Actually
Makes Sales
▼

COMPLETE SERVICE WITH STANDARD EQUIPMENT

One hundred fifty dollars is the price of a standard space measuring 10 feet square. This rate includes the following service and equipment without extra charge:

Regulation Sign	Floor Covering
Dividing Rails	Two Chairs
Hat Tree	Desk
Electrical Installation and Steam Connections	

Every conceivable want of the exhibitor is anticipated and prepared in advance.

APPLY FOR SPACE NOW

Chester I. Campbell, General Manager, 329 Park Square Bldg., Boston

It all depends on the needle

The success of every development in the design and construction of hosiery yarns or knitting machinery — for finer qualities or greater speeds — rests on the capabilities of the needle. That we are America's largest producers of Spring-Beard Needles, and that nearly all the leading manufacturers of fine quality stockings are standardized on Royersford is a tribute to *consistent betterment*.

ROYERSFORD NEEDLE WORKS, INC.

America's Largest Makers of Spring-Beard Needles

Main Office and Works—Royersford, Penna.

The prescription for better knitting

ROYERSFORD STANDARD STEEL AND DURAKROME **NEEDLES**

THE NEW WELT

E~L~A~S~T~I~C! With this new welt, on the Model K machine, you can please the outsize customer and the slender customer, too. It has remarkable "spring"; and this elasticity characterizes not only the welt itself, but the whole top portion of the stocking; there are inches more of *give* • Once the machine is adjusted, there is no need for constant watching; this new welt construction is a fixed, mechanical process and it means easier production • And, of course, the exclusive "Gussetoe" and the new square heel, are other sales features you can have along with this welt on the Spiral K.

"This is the Scott & Williams Machine Age"

ESTABLISHED 1865

SCOTT & WILLIAMS

INCORPORATED

366 BROADWAY, NEW YORK, N. Y.

HOSE FOR ALL OCCASIONS ON THE "STANDARD" 80 WRAP

Sports wear—street wear—dress wear . . . whatever the consumer requirement, it can be met in an attractive and appropriate design with half-hose made on the Standard 80 Wrap. This machine's versatility gives you *style* leadership; its mechanical proficiency gives you fabric *quality* that recommends itself!

What's more, on the 80 Wrap you have the advantages of the exclusive "Gussetoe"—fine gauge—and the possibility of using any yarn construction.

and TECHNICALLY SPEAKING:

Pattern flexibility, and the fact that any number up to 80 of adjacent needles can be wrapped, are clearly illustrated in the two "80 Wrap" designs shown.

From both a mechanical and a sales point of view, the Standard "80 Wrap" is the most advanced wrapped embroidery hose machine on the market.

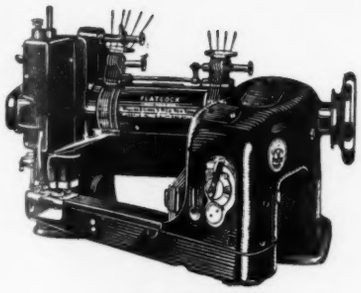
STANDARD TRUMP

Established 1872

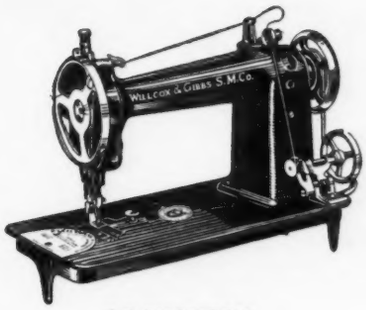
STANDARD-TRUMP

BROS. MACHINE CO., INC.

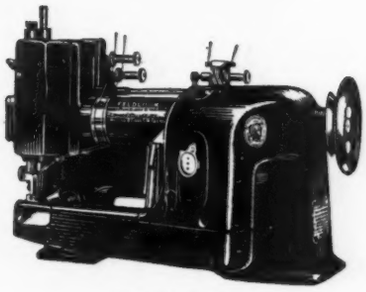
366 BROADWAY NEW YORK, N. Y.



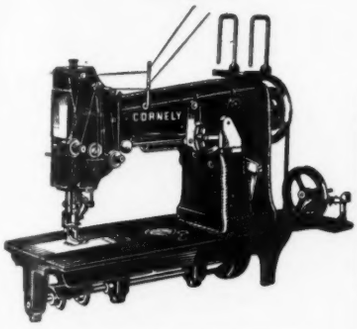
FLATLOCK



LOCKSTITCH

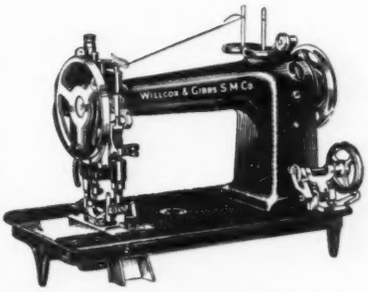


FELDLOCK

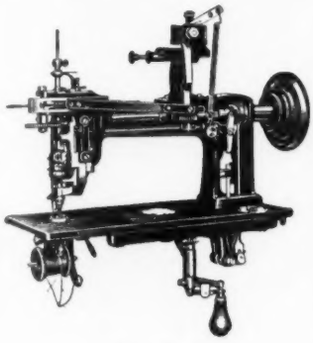


TWO-NEEDLE HEMSTITCH

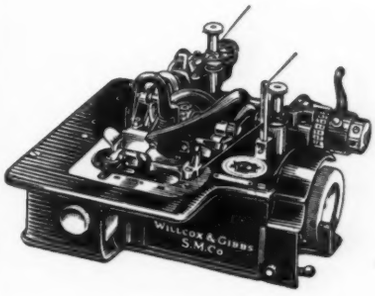
FOR PRODUCING PROFITABLE MERCHANDISE



LOCKSTITCH TRIMMER & BINDER



CORNELY



OVERLOCK

WILLCOX & GIBBS

SEWING MACHINE COMPANY

658 Broadway • New York, N. Y., U. S. A.

BRANCH OFFICES IN PRINCIPAL CITIES

New Willcox & Gibbs Machines and genuine Parts can be purchased only from the company's offices

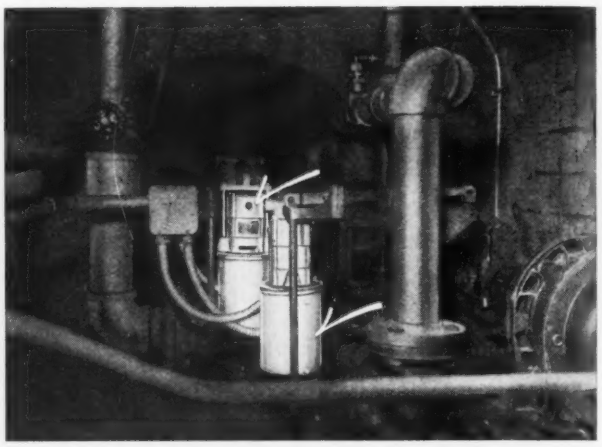
TO KEEP UP . . . . . CHECK UP . . .

THRUSTOR Valves Solve Many Problems

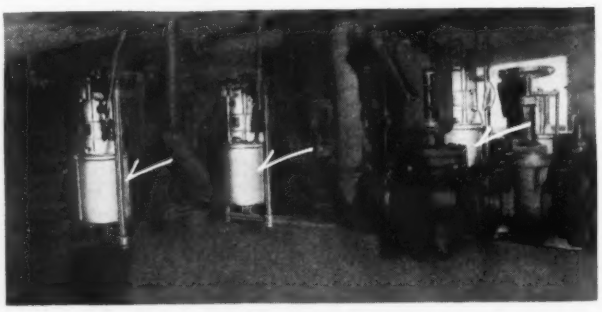
A GENERAL ELECTRIC Thrustor valve solved the problem of automatic, accurate control of water for each batch of concrete according to weight—solved it to "our complete satisfaction" wrote the customer, and "this valve has functioned perfectly." A leather goods manufacturer writes: "The closing of the Thrustor valve, while being positive, is accomplished without sudden jar. We consider this unit to be a distinct improvement over former types of mechanical valve operation." Statements from users in a wide variety of industries attest the ability of Thrustor valves in solving difficult valving problems.

To keep up — check up your present valves. In this list—which is representative of scores of applications—check those about which you would like complete information:

- ☐ Admitting and exhausting air
- ☐ Maintaining temperature in open tanks
- ☐ Maintaining water levels
- ☐ Introducing molasses or other heavy liquids
- ☐ Control of water flow (or other liquids)
- ☐ Controlling weight of materials
- ☐ Remote control
- ☐ .....
- ☐ .....



Two Thrustor valves doing a difficult job under an electric fountain

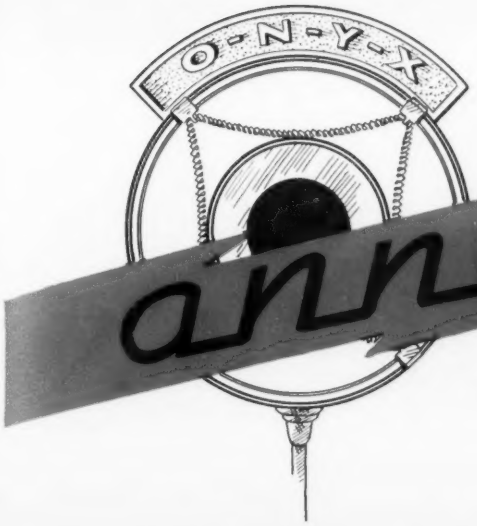


Line-up of Thrustor valves—a typical installation

Address your inquiry to the nearest G-E office, or General Electric Company, Schenectady, N. Y. Ask for a copy of publication GES-848, "Why Thrustor Valves?"

301-117

GENERAL ELECTRIC



announcing

A Revolutionary Development *from the* ONYX Laboratories !

ALIPHATIC ESTER SULPHATE AND GLYCERYL SULPHATES

PATENTS APPLIED FOR

THE NEW SERIES!

Aliphatic Ester Sulphate

Highly effective as a Penetrating and Wetting out agent in the Dyebath; for Kierboil, Finishing, Throwsting, Printing and Vat Dyes. So stable, will not break under *any* conditions of use. Resists boiling in organic acids and salts; unaffected by hard or calcerous water. Carries dye into tiniest fibre and produces clear, even-dyed fabric in record time. Effects important savings in amount of dyestuffs needed.

Oleo Glyceryl Sulphate

Used for Softening, Finishing and Lubricating Silks, Rayon or Mixed Goods in all processes. For Dyeing and Finishing. For Kierboiling; for boiling off Hosiery; for Silk Throwing; as a base for emulsions. In boiling off and kierboiling will not break under hard or calcerous water. Prevents oil spots. Boil off is more penetrating and cleansing.

Stearo Glyceryl Sulphate

Recommended for Softening and Finishing of Cotton, Rayon, Silks, etc. Produces softer feel. Gives a *penetrated* finish not merely surface. Stable with organic salts and hard water; no danger of breaking. Positively no odor in storage. Beautiful effects obtained.

Palmito Glyceryl Sulphate

Very effective for scouring Wool and Boiling off Cotton and Rayon. Deeply penetrative, removing every trace of emulsions and oils. Wool becomes fluffier. Even shades assured in dyebath.

Write for Booklet and Sample. State operation and type fabric.

WHAT the world's chemists have been working years to perfect, ONYX chemists have now achieved — the development and production of ALIPHATIC ESTER SULPHATE and GLYCERYL SULPHATES . . . successors to and superior to, ordinary sulphonated aliphatic compounds. Most important . . . they are priced within reach of every mill!

GLYCERYL SULPHATES and ALIPHATIC ESTER SULPHATE benefit every processing branch of the industry. They raise old standards of results. They produce finer fabrics than ever before possible. All operations on any fabric are performed with increased speed — less trouble — reduced operating costs — smaller quantities of compound —and with an excellence of results that are unparalleled.

What are ALIPHATIC ESTER SULPHATE and GLYCERYL SULPHATES?

These terms cover compounds, of any base, which practically reach the point of ***complete possible sulphonation.*** THEY ARE NEW COMPOUNDS . . . not ordinary oils wherein just higher SO_3 content has been obtained.

ALIPHATIC ESTER SULPHATE and GLYCERYL SULPHATES are made by a new . . . unusual . . . unique method developed by ONYX chemists, wherein a ***minimum*** of fatty acid is generated . . . ***not*** by the well-known, expensive extraction processes and their consequent high acid content.

When you remember that sulphonated oils of present manufacture containing *only* 1/3 the total maximum possible sulphonation are rated highly . . . you will readily appreciate the tremendous advance of this development. This series is fully protected by patents applied for in the United States and Europe.

The most convincing story is told in an actual trial. Write—stating your operation and type fabric . . . and a suitable sample will be sent. Ask for booklet fully describing the series.

ONYX OIL & CHEMICAL CO.

Jersey City, N. J.

Specialists on Finishing Materials

Midwestern Representative: CHAS. E. MAHER, Chicago, Ill.

If the new year demands new economies ..... *start with* TUFFER CARD CLOTHING

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.

THAT'S an economy you can depend on. It has been proved by mills for over 60 years. Always dependable, Tuffer Card Clothing is given still longer life by a new, *patented foundation which resists stretching while on the card . . . firmly supports the wire . . . and eliminates redrawing of cylinder and doffer fillets.* Steel is brought all the way from Sweden to make possible a tougher, stronger wire without brittle points.

Long life is one important economy. But that's not all. Faster, smoother carding—Even, uniform laps. Fewer machine stops. All these savings have a far reaching effect in reducing mill costs. And all are made possible by the fine, paintaking construction of Tuffer Card Clothing.

Start the year with Tuffer on your cards for greater net profits. Our main office or branch offices listed below will gladly cooperate—write.

Howard Products

CARD CLOTHING
NAPPER CLOTHING
WIRE HEDDLES
CYLINDER FILLETS
DOFFER FILLETS
HAND STRIPPING CARDS
STRIPPER FILLETS
BURNISHER FILLETS
EMERY FILLETS
STRICKLES

TOP FLATS RECOVERED

Complete equipment for recovering top flats and Lickerins has been established at our Branch Factory, 244 Forsyth St., S. W., Atlanta, Ga. Prompt service is assured.

Extra sets of flats can be loaned to mills. A complete stock of Howard products are also carried at this plant ready for quick delivery.

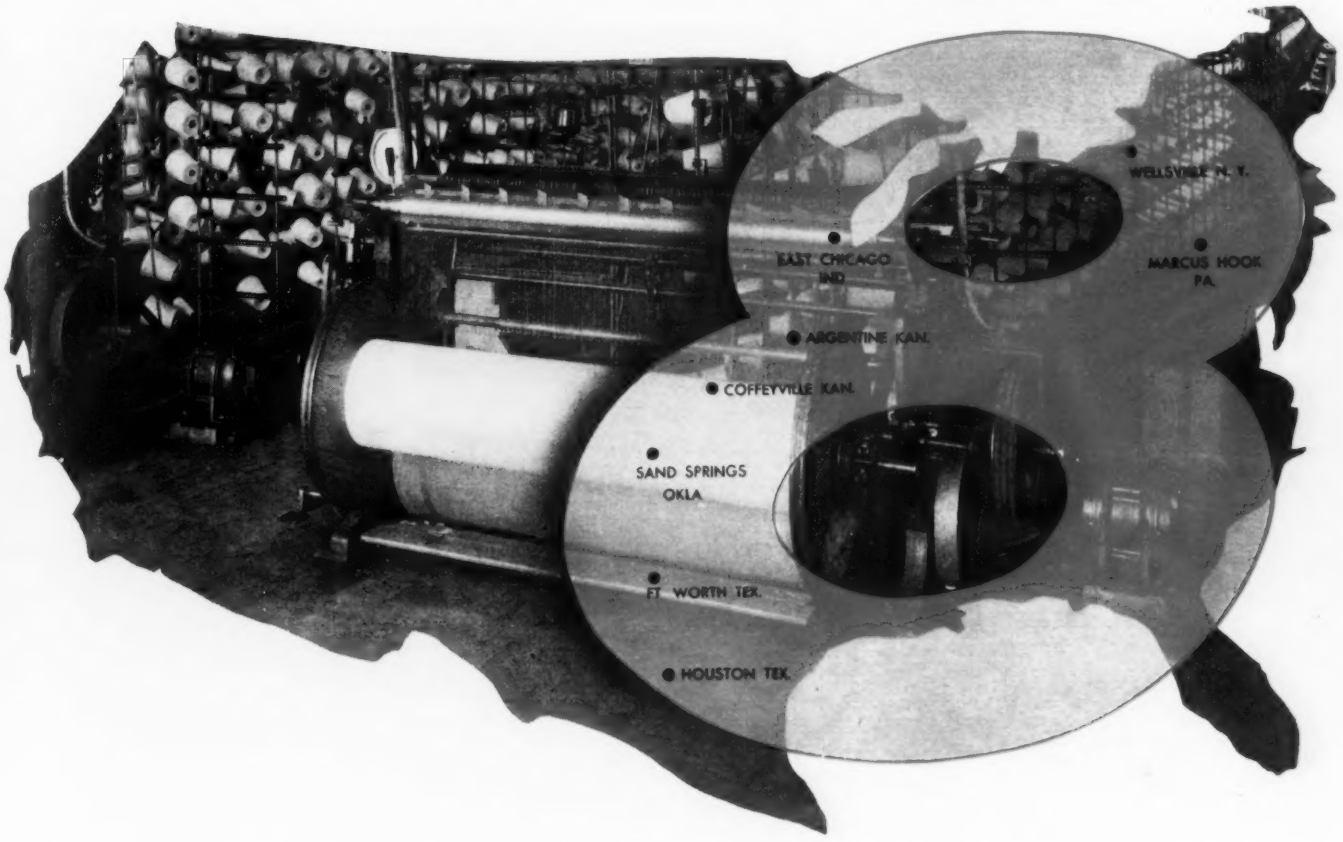
If you are not receiving "The Howard Way," an interesting, informative monthly publication, write and ask to have your name added to the mailing list.

HOWARD BROS. MFG. CO.
HOME OFFICE AND FACTORY: WORCESTER, MASS.

Southern Branch Plant
244 Forsyth St., Atlanta, Ga.

Branch Offices
Philadelphia, Pa. Dallas, Texas

The world's largest pipe line system serves the SINCLAIR BIG



7,000 miles of pipe line (the world's largest pipe line system) bring to the 8 great Sinclair refineries the high quality crudes from which some 200 different Sinclair products are manufactured.

The low cost of these products in actual use is shown by the fact that Sinclair, for the second successive year, has been awarded the major part of the U. S. Navy lubricating contract. In considering competitive bids on this contract, the Government took into account both quality and price. *Sinclair products were chosen because they showed the lowest service cost per gallon.*

In the textile field the worth of Sinclair lubricating advice is recognized by many operators. The Sinclair line of petroleum products includes lubricants which meet all of the varying requirements of textile machinery.

Our engineering service is at your command. Sinclair engineers are daily consulting with important oil users, assisting them to solve knotty lubricating problems. Call or write our nearest office or any local Sinclair Agency. Sinclair Refining Company (Inc.), New York, Atlanta, Chicago, Houston, Fort Worth, Kansas City Sinclair Refining Company of California, Los Angeles

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Tune in Monday evenings . . 36 NBC Stations—SINCLAIR MINSTRELS

SINCLAIR

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INDUSTRIAL OILS **GREASES**

WIND **and** SPIN
a top in the dark IF YOU LIKE

MODERN INDUSTRY DEMANDS COOPER HEWITT LIGHTING

SPINNING yarn, of course, is an infinitely more complicated operation than spinning a top—yet the quantity and quality of illumination needed for the former too often gets about as much consideration as does that needed for the latter.

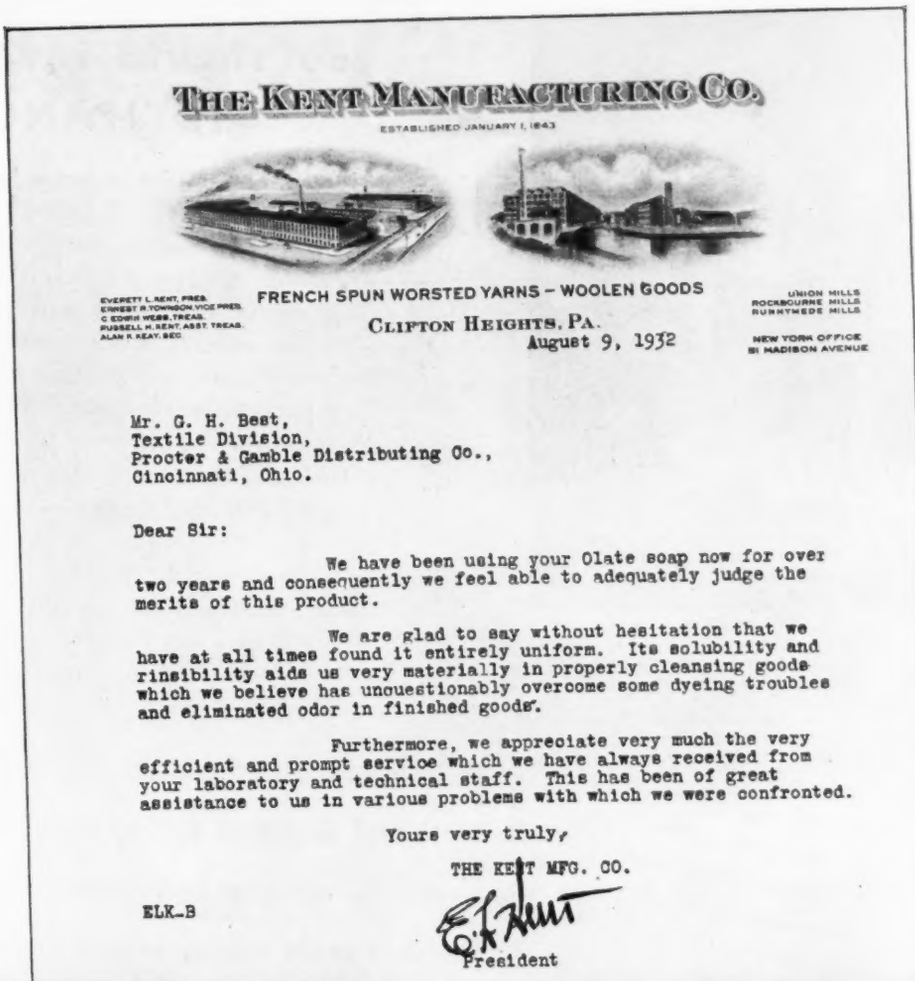
Yet, particularly in the setting-up and operation of spinners, spoolers and warpers, operatives must see with exceptional clearness and accuracy if finished yarn is to be as free as possible from slugs, thin places, singlings, doublings and other imperfections.

Cooper Hewitt light pays for itself many times over in helping to correct all these deficiencies. In creeling, piecing up ends, doffing, oiling, banding, draft and gear twist changing, putting on new travellers—every stage of spinning—this extraordinary illuminant increases efficiency, speeds production, reduces spoilage, adds to profits.

Let us *prove* this—put in a few Cooper Hewitts for a 30-day trial. General Electric Vapor Lamp Company, 849 Adams Street, Hoboken, N. J.

GENERAL ELECTRIC
VAPOR LAMP COMPANY

541 Copr. 1932, General Electric Vapor Lamp Co.



THE KENT MANUFACTURING CO.

ESTABLISHED JANUARY 1, 1843

EVERETT L. KENT, PRES.
ERNEST R. TOWNSON, VICE PRES.
C. EDWIN WEBB, TREAS.
RUSSELL H. KENT, ASST. TREAS.
ALAN R. KEAY, SEC.

FRENCH SPUN WORSTED YARNS – WOOLEN GOODS

CLIFTON HEIGHTS, PA.

UNION MILLS
ROCKBOURNE MILLS
RUNNYMEDE MILLS

NEW YORK OFFICE
81 MADISON AVENUE

August 9, 1932

Mr. G. H. Best,
Textile Division,
Procter & Gamble Distributing Co.,
Cincinnati, Ohio.

Dear Sir:

We have been using your Olate soap now for over two years and consequently we feel able to adequately judge the merits of this product.

We are glad to say without hesitation that we have at all times found it entirely uniform. Its solubility and rinsibility aids us very materially in properly cleansing goods which we believe has unquestionably overcome some dyeing troubles and eliminated odor in finished goods.

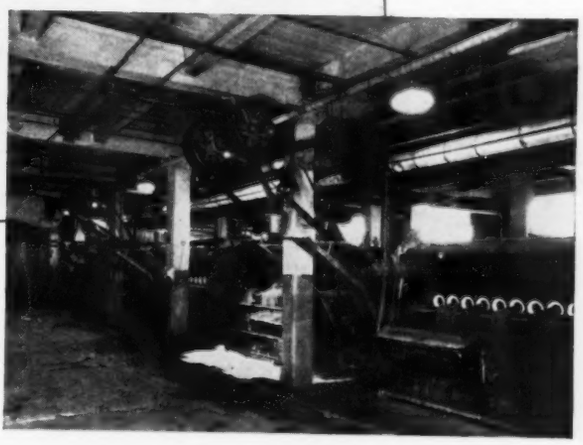
Furthermore, we appreciate very much the very efficient and prompt service which we have always received from your laboratory and technical staff. This has been of great assistance to us in various problems with which we were confronted.

Yours very truly,

THE KENT MFG. CO.

E. L. Kent
President

ELK-B



Two views in the Wet Finishing Department of The Kent Manufacturing Company, Clifton Heights, Pa. A battery of washers is shown at the right. At the left is a corner of the fulling room.

"Olate has helped overcome our dyeing and wet finishing troubles," *says The Kent Manufacturing Co.*

Salable merchandise is the first aim of every textile concern. And textile men today recognize that good soap, because of its ability to assure better processing results, is one of the surest means of producing salable merchandise.

Two years ago, a series of test runs with Olate Flakes, supervised by our technical staff, was instrumental in smoothing out some processing difficulties in the wet finishing department of The Kent Manufacturing Company.

Since that time, The Kent Manufacturing Company has been a steady user of Olate. Mr. Kent writes that his plant's experience with this superior low-titer soap in assuring better and more economical scouring, fulling and dyeing has been satisfactory indeed.

Try Olate in *your* plant. We are confident that the results from your first test runs will speak for themselves.

Procter & Gamble · Cincinnati, Ohio

you should investigate METHANOL

All alcohols contain hydrocarbon and alcohol groups. METHANOL, being the simplest of all alcohols, contains the greatest percentage of alcohol groups. In fact, it is composed of 53% of the desirable, active alcohol group — while ethyl alcohol contains only 36%, isopropyl alcohol 28% and butyl only 23%. In other words, *your alcohol dollar buys the most alcohol groups when you purchase METHANOL.*

Also, it is well known that the first member of an aliphatic family exhibits properties not appearing in higher members of the series. Methanol bears out this rule as indicated by the following points of superiority over the other aliphatic alcohols —

ACETONE	METHANOL
BUTYL ACETATE	METHYL ACETATE
BUTYL ALCOHOL	METHYL ACETONE
BUTYL CARBITOL★	METHYL CELLOSOLVE★
BUTYL CELLOSOLVE★	PROPYLENE CHLORHYDRIN
BUTYRALDEHYDE	PROPYLENE DICHLORIDE
CARBITOL★	PROPYLENE GLYCOL
CARBOXIDE★	PROPYLENE OXIDE
CELLOSOLVE★	TRIETHANOLAMINE
CELLOSOLVE★ ACETATE	TRIETHYLENE GLYCOL
DICHLORETHYL ETHER	VINYL CHLORIDE
DIETHYLENE GLYCOL	VINYLITE★ RESINS
DIOXAN	ETHYLENE
ETHYL ACETOACETATE	PROPANE
ETHYL ETHER	ISOBUTANE
ETHYLENE CHLORHYDRIN	BUTANE
ETHYLENE DICHLORIDE	ETHANE
ETHYLENE GLYCOL	PROPYLENE
ETHYLENE OXIDE	ACTIVATED CARBON
ISOPROPANOL	PYROFAX★
ISOPROPYL ETHER	

★Trade-mark Registered

1. **Its solutions freeze lower.**
2. **Methanol dissolves R.S. cellulose nitrate.**
3. **Forms no constant boiling mixture with water.**
4. **Has less grain raising action in wood stains.**
5. **The most powerful solvent for "spirit-soluble" dyes and resins.**

In addition, METHANOL has the following commercial advantages:

(a) **Better odor (no denaturants).**

(b) **It is the most economical of all alcohols.**

(c) **Requires no permit.**

(d) **It is the purest industrial alcohol—containing 99½% CH_3OH.**

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Producers of Synthetic Organic Chemicals

30 EAST 42nd STREET, NEW YORK, N. Y.

Unit of Union Carbide UCC *and Carbon Corporation*

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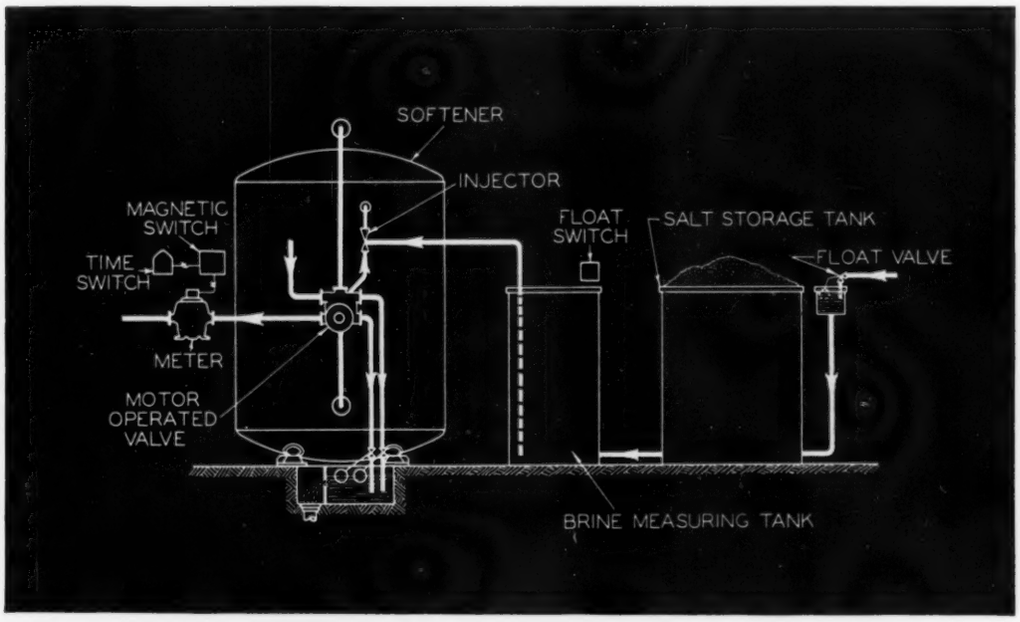
Please send price, specifications and data on Methanol to

Name _____ *Company* _____

Street _____ *City* _____ *State* _____

New! Fully Automatic!



Soft Water at *Lower Cost*

AS its contribution to the efficient management of textiles. The Permutit Company has developed for the needs of 1933 a fully automatic zeolite water softener which, by increased efficiency, is able to produce zero hardness water at lower cost than ever before. This new softener is completely self-regenerating and requires merely the loading of salt into the salt storage tank at approximately every 10 regenerations.

The operation is fundamentally controlled by a water meter, time switch and float switch. This fully automatic operation has been made possible by the development of Permutit's single valve control. The valve, motor-operated—is the heart of the system.

Adaptable to Present Equipment

This automatic water softener possesses many advantages, the major ones of which are tabulated (extreme right) for your convenience. Note particularly that a plant can be equipped with fully automatic water softening equipment at no greater cost than for the manually operated kind. Further, these automatic features (which are exclusively Permutit's, and patented by them), can be applied to any existing downflow zeolite water softener.

* * *

Full particulars in reference to your plant gladly supplied — just write "Tell me about you new Automatic." The Permutit Company, 440 Fourth Avenue, New York City.

9 ADVANTAGES

1. **Most efficient zeolite water softener ever built.**
2. **All operations automatically carried out under precise control.**
3. **Completely softened water — no overrunning, no under-regeneration.**
4. **Thorough washing assures clean, active zeolite.**
5. **Saves salt — uses only the absolute minimum required.**
6. **Is completely and thoroughly rinsed with minimum quantity of water.**
7. **Less floor space — more salt storage.**
8. **Prices comparable with manually operated equipment.**
9. **Automatic features can be applied to any existing downflow zeolite water softener.**

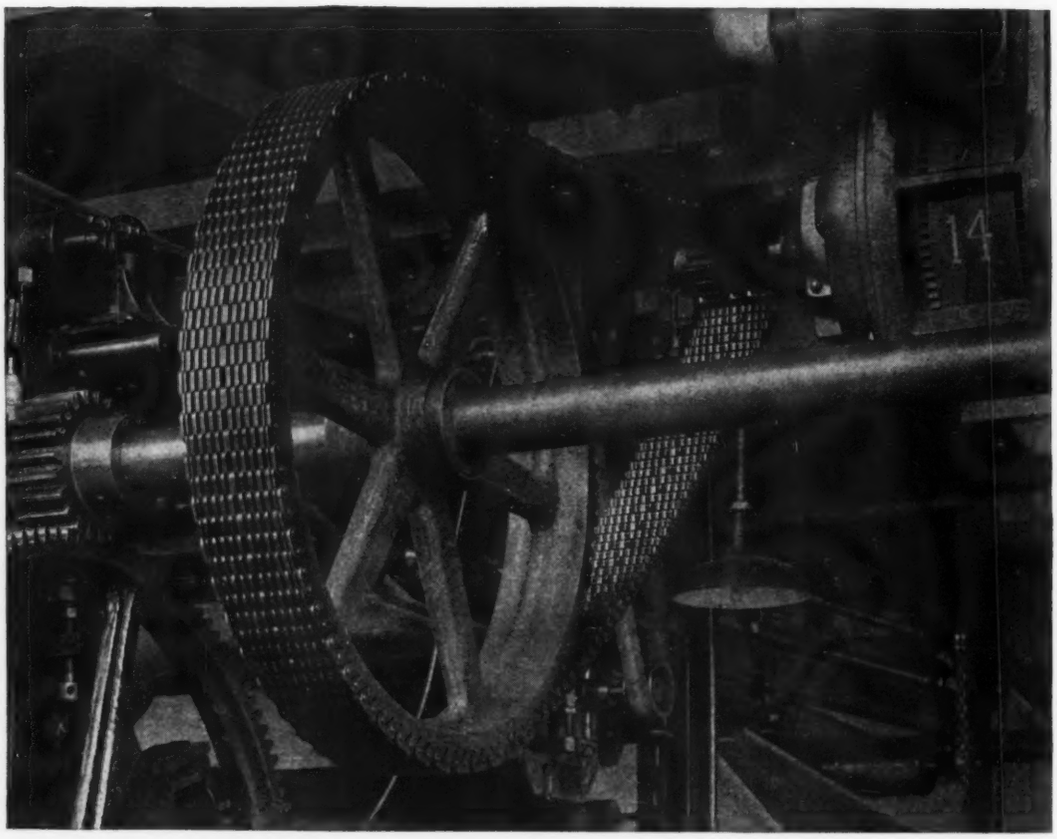
Permutit *Water Treating Equipment*

SALES OFFICES IN ALL PRINCIPAL CITIES OF THE UNITED STATES

PRODUCTION

STARTS WITH THE POWER DRIVE

The Lasting Efficiency of WHITNEY Chain Drives eliminates costly power transmission losses.



Production on today's basis can be profitable only when the full efficiency of mechanical equipment is utilized. An added responsibility is placed on the power drive to maintain constant machine speeds and to eliminate costly power transmission losses.

Positive WHITNEY Silent Chain Drives have proved their ability to give dependable and lasting power transmission efficiency with a minimum of attention and maintenance expense. They have the added capacity to handle overload conditions, which makes them especially desirable.

Specify WHITNEY Silent Chain Drives for positive power transmission.

THE WHITNEY MFG. CO. HARTFORD, CONN.

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FOR POSITIVE POWER TRANSMISSION

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HUNDREDS of attractive, up-to-date, necessary Stock Design Kaumagraph Dry Transfers are listed and described. Classifying and cross indexing makes it easy to find exactly what you want. Constructions, gauge transfers, needle transfers, sizes—the transfers you need every day—all are catalogued and carried in stock for immediate delivery. Illustrations show styles and colors. The book includes instructions for use and describes all the Kaumagraph accessories that help make K. D. T.'s the most economical method of marking hosiery, underwear and other textiles.

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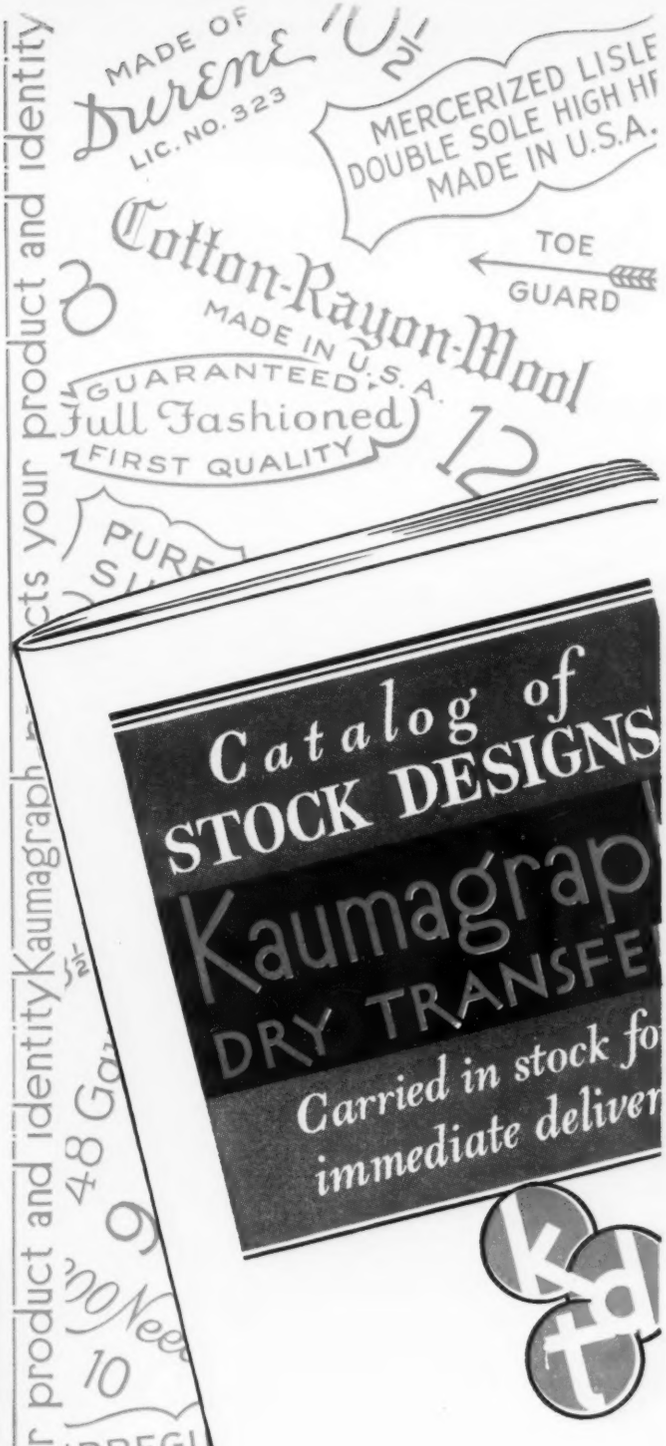

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INDIVIDUAL.....

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At the Mathieson plant, rigid inspection of all equipment, from single cylinders to 30-ton tank cars, doesn't terminate when the usual safety requirements are met. No container of Mathieson Chlorine is sent on its journey to the consumer until careful testing assures that all valves, threads and other parts are clean, accurately placed and in perfect working condition.

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